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THE EXPERIMENTAL REORGANIZATION OF NON-AUTOMATIC WEAVING IN AN INDIAN MILL

A Further Study of Productivity and Social Organization

A. K. RICE

The breakdown of total tasks into component operations and the performance of components by different workers is a commonplace of modern industrial planning. Less common is the de-differentiation of component operations to provide reintegrated whole tasks. A previous paper (1) described an Indian automatic loom shed in which tasks and occupational roles had been so differentiated that the resultant pattern was of an aggregate of individuals with confused task and social relationships and no discernible internal group structure. Reorganization led to a de-differentiation of tasks and occupational roles and resulted in the creation of internally led small work-groups each responsible for an integrated whole task. This paper describes an experimental reorganization of non-automatic loom weaving in which differentiation and reintegration were accomplished in one process.

The experiment was carried out during work by the Tavistock Institute in the Calico Mills of Ahmedabad, India. The author collaborated with Company management and members of the Development and Research Division and with management and workers of the weaving department both in the working out of the theoretical basis for the experiment and in its practical application. Their help is acknowledged with sincere thanks.[1]

1. Members of the Ahmedabad Manufacturing and Calico Printing Co., Ltd. involved—Gautam Sarabhai, Chairman of the Company; J. A. Gandhi, General Manager; Jethalal C. Thaker, Production Division Manager; P. S. Trivedi, Weaving Master; C. P. Caprihan and B. Sarkar, Development and Research Division; V. D. Chiplunkar, G. R. Vyas, and J. B. Patel, Supervisors. C. P. Caprihan took charge of the experimental shed from the beginning. He was, with Jethalal Thaker, responsible for the erection of the looms, for the selection of supervisors and workers, and carried not only the major technological burden throughout the experimental period but was responsible for the implementation of all decisions about social reorganization.

All the members of the Company involved have read the paper in draft form and have made their comments upon it. K. P. V. Malai calculated the results and tabulated the data, and Shirin Vakil acted as interpreter to the author in discussions with the workers.

In November 1953 the Calico Mills management decided that the quality of the grey cloth woven in the mills needed to be improved. Government reluctance to license the installation of modern automatic looms made it necessary to effect the improvement of quality from existing old non-automatic looms. Two main courses of action appeared possible: first, to accept the existing socio-technical system of non-automatic loom weaving and to examine the efficiency of its operation; and second, to examine the existing system and to consider possible modifications which, by improvements of technology or organization, would lead to an improvement in quality. Since the existing socio-technical system was basically the same as that used throughout the textile industry, and since the majority of those employed in the weaving sheds had all had many years of experience, acceptance of the existing system and examination of its operation could, it was felt, only lead to improved quality by the usual, and recurrent, tightening of standards of inspection and supervision. Before taking such action it was decided to consider possible modifications of the existing system.

After studies had been made in the non-automatic loom sheds an experimental shed was set up. In this shed, with the active cooperation of management and workers, experiments were carried out with various kinds of work organization, involving radical changes in work habits. Finally, internally-structured small work-groups were formed each of which performed all tasks of running, maintaining, and servicing groups of forty looms. After considerable technical and organizational difficulties in the early stages, the experimental loom shed became an efficient working unit and the quality of cloth produced showed improvement over that coming from other loom sheds.

It rapidly became evident during the course of the experiments that they were not only experiments in socio-technical reorganization but also, perforce, experiments in the building up of permissive and collaborative relationships between workers, supervisors, middle management, and top management. The test of the acceptability of technological or social innovation was found to be dependent not only upon the intrinsic merit of the innovation but also upon the relationships which existed between all those concerned in the experimental shed.

The present paper is in three parts:

I. A description of the existing socio-technical system of non-automatic loom weaving.
II. An analysis of the tasks of non-automatic loom weaving and a description of the reorganization.
III. The results of the reorganization.

I. THE EXISTING SOCIO-TECHNICAL SYSTEM OF NON-AUTOMATIC LOOM WEAVING

Non-automatic Loom Weaving

The A and B mill loom sheds of the Calico Mills contain 760 and 640 looms respectively. These are all non-automatic Lancashire looms.

The operations of weaving on a non-automatic Lancashire loom are carried out by *bobbins* containing *weft* yarn (threads across the length of the cloth) and *beams* containing *warp* yarn (threads along the length of the cloth). A loom is prepared for weaving by *gating*. A beam is gated into brackets at the back of the loom; each warp thread is passed through the eye of a *heald*, then through a *reed*, and is finally attached to a cloth roller on the front of the loom which takes the woven cloth. A bobbin containing weft yarn is placed in a *shuttle* which is knocked backwards and forwards on a *slay* in front of the reed by a *picker* through a *shed* of warp threads formed by the rise of some healds and the fall of others. As the shuttle travels through the shed in front of the reed it leaves behind it a thread which is unwound from the bobbin within the shuttle. Each weft thread so inserted is banged against the previous one by the reed before the shuttle makes its return journey. A loom set up for weaving is represented in a simplified diagrammatic form in *Figure* 1.

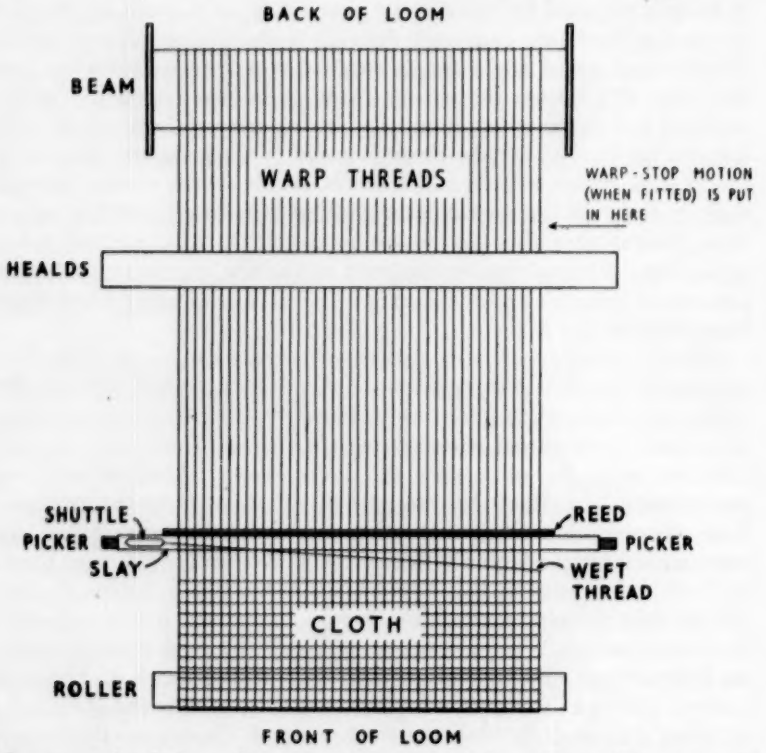
The looms are fitted with devices which stop them whenever the weft yarn breaks or the bobbin is exhausted, but were not fitted with any device to stop the loom when a warp thread broke (*warp-stop motion*—a device in which each warp thread passes through a weighted wire which drops into a slot and stops the loom when the thread breaks). Attempts to fit warp-stop motions had always been resisted by the workers on the grounds that warp-stop motions made their work much harder and reduced their opportunities for earning a high production bonus. When the weft yarn breaks or the bobbin is exhausted, the shuttle is taken out, a new bobbin is inserted, and the yarn threaded through the shuttle. The shuttle is then replaced and the loom restarted. When a warp thread breaks the break must be observed, the loom stopped by hand control, and the thread mended. This usually involves adding a short piece of spare yarn to the broken end (*knotting*) and threading it through the heald and reed (*drawing*). The loom is then restarted. The normal time for replacing an exhausted bobbin is approximately twenty seconds, and for the knotting and drawing of a single warp thread from thirty to sixty seconds. Stops of this duration (*short stops*) also occur when minor entanglements occur in the warp threads, and when short or missing threads occur on the warp beam. Stops of from thirty minutes to several hours (*long stops*) occur when the beam is exhausted and has to be renewed, when there is a major entanglement, or when there is a *smash*—the breaking of a large number of ends at the same time. A smash is usually caused by

untrue running of the shuttle which ploughs its way through the warp threads.

Loom maintenance and tuning take place whenever a new beam is gated, but minor adjustments are frequently required at other times.

The length of yarn which can be wound on a beam or on a bobbin depends upon the size of the beam and the bobbin and upon the thickness of the yarn (the *count*—the finer the yarn the higher the count). The kind of

FIGURE 1 *DIAGRAMMATIC REPRESENTATION OF A LOOM SET UP FOR WEAVING*



cloth woven (*sort*) depends upon the count and the colour of the yarn and the number of threads to the inch in warp and weft (*the reed count* and *the pick count*). The length of warp beams used in the A and B mills varies from 2,000 to 8,000 yards and the length of weft yarn on bobbins from 1,000 to 2,000 yards. Under normal running conditions a bobbin lasts from 5 to 12 minutes, depending upon the count, and a beam from 400 to 1,000 hours. The cloth roller holds between 200 and 300 yards, depending upon the sort being woven. Cloth is cut from the loom once every other shift in lengths

varying between 40 and 80 yards, again depending upon the sort being woven. On any day approximately forty main sorts, each with seven or eight sub-varieties, are being woven in the two mills. A new beam is assigned to a loom irrespective of the previous sort woven on it provided only that the kind and size of the loom is appropriate to the new beam, and that the claims of particular weavers to work of certain kinds can be satisfied.

TABLE 1 *TASKS AND OCCUPATIONAL ROLES OF NON-AUTOMATIC LOOM WEAVING*

	Tasks	*Occupational Role*
Loading	Transport weft from weft store to loom (*weft carrying*)	Weaver
	Transport assorted colour wefts from weft store to looms (*weft distributing*)	Line Jobber
	Transport beams from preparation department to warp store and from warp store to looms (*warp carrying*)	Beam Carrier
	Change empty beam in loom bearings for full beam (*warp mounting*)	Beam Carrier and Oiler
	Tie-in warp, check, tune loom, put full weft bobbin in shuttle, recheck, start loom (*gating*)	Line Jobber
Weaving	Remove empty bobbin from finished shuttle and replace with full bobbin. Remove empty shuttle and replace with full, restart loom (*shuttling*) Observe back of loom, remove fluff, take action to prevent entanglements (*fault prevention*) Stop loom when fault occurs, unweave and repair faults, draw and knot broken ends, restart loom (*warp mending*) Stop loom when major fault occurs, unweave and repair (*smash tenting*)	Weaver
Unloading	Cut cloth at cutting marks and remove completed cloth (*cloth removing*) Transport cloth from loom to cloth room (*cloth carrying*) Check in cloth in cloth room and stack	Weaver
Maintenance	Running repairs not involving major overhaul or fitting (*maintaining*)	Line Jobber
	Cleaning and oiling (*oiling* (*gating*) *and oiling* (*routine*))	Oiler
	Oiling shuttle-spindle and minor adjustments (*maintaining*)	Weaver

Weaving Tasks

Once looms are set-up (gated) weavers are responsible for the total task of weaving on two looms. They collect their own weft yarn from a weft store, to which it is supplied by the spinning and winding departments, they are responsible for running their looms, and for minor adjustments to them. They are also responsible for repairing all faults in the cloth caused during weaving, for removing woven cloth from the looms, and for delivering it to the cloth room.

TABLE 2 *OCCUPATIONAL ROLES, NUMBERS, TASKS, LINES OF RESPONSIBILITY AND AVERAGE MONTHLY WAGES TO NEAREST RUPEE ON THE FIRST SHIFTS—A MILL LOOM SHED*

Occupational Role	*Numbers Employed*	*Tasks*	*Line of Responsibility*	*Average Wage less D.A. p.m.**
Line Jobber	19	Gates beams, tunes, and starts looms, maintains looms, supervises weavers, obtains coloured wefts. (Gating, weft distributing, maintaining, supervising)	Responsible to Weaving Supervisor/ Head Jobber for group of weavers	139**
Weaver	380	Fetches weft, refills shuttle, shuttles, repairs faults in weaving, looks after 2 looms. (Weft carrying, shuttling, fault prevention, warp mending, smash tenting, cloth removing, and maintaining)	Works on own, responsible to Line Jobber	66**
Beam Carrier	2	Transports beams from preparation department to warp store and from warp store to loom, places warp in brackets on loom, returns empty beams. (Warp carrying, warp mounting)	Part of gang responsible to preparation department supervisor	37
Oiler	14	Cleans and oils loom during gating, assists beam carrier to lift beam onto loom. Cleans department during holidays. (Oiling (routine), oiling (gating), warp mounting)	Works alone except on holidays when works in gang. Responsible to Weaving Supervisor/ Head Jobber	28

* D.A.=dearness allowance, an allowance which varies from month to month with a cost of living index. At the time of the analysis it was Rs. 80 per month.

** Average piece-work earnings.

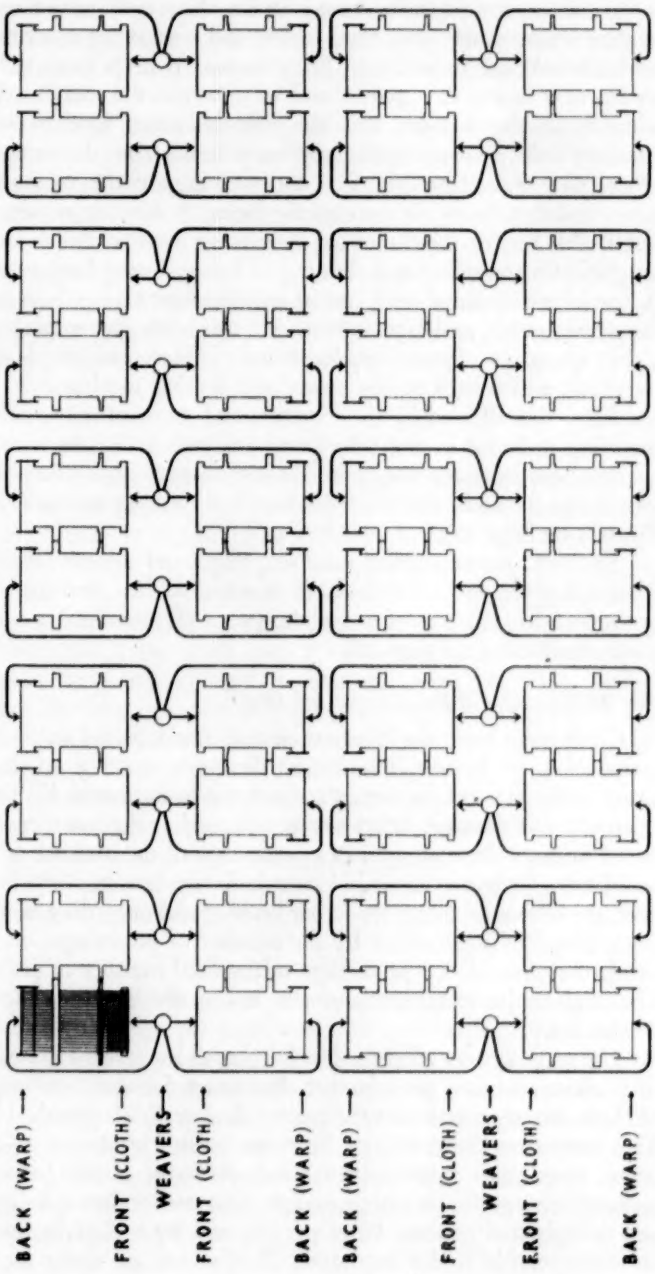


FIGURE 2 *POSITION OF LOOMS AND AMBIT OF WEAVERS IN A BLOCK OF 40 LOOMS*

In the loom shed the weaver is under the control of a line jobber who in turn is responsible to a head jobber and a weaving supervisor. The line jobber's tasks are to maintain forty looms, to keep them fully loaded by gating new beams as required, and to supervise the weavers. There are, in addition to the weavers and line jobbers, other workers who perform ancillary tasks. Beam carriers carry warp beams from the sizing department, where they have been prepared for weaving, to the weaving shed warp store, and then from the store to the looms as they are required. Oilers are responsible for the routine oiling of moving parts while the looms are running and for the oiling and cleaning of looms during long stops for gating. A few looms are fitted with special attachments turning them into jacquard, drop-box, plush, and tape looms, and specialists are employed for them. Other specialists—fitters, carpenters and cobblers—are employed for major overhauls and repairs to the looms and driving mechanisms. None of the specialists was affected by the experimental reorganization and they are not therefore included in the subsequent analysis. The tasks and their related occupational roles are shown in *Table* 1 on page 203. The positions of the looms and the ambits of the weavers when running 40 looms are shown in *Figure* 2 on page 205.

The occupational roles, numbers employed on one shift in A mill, (containing 760 looms) tasks, lines of responsibility, and the average wage per month less the cost of living allowance (*Dearness Allowance—D.A.*) are shown in *Table* 2 on page 204.

The Measurement of Productivity and Wages

Cloth is cut from the looms at cutting marks placed on the warp during preparation of beams. The length between cutting marks (*the piece*) varies with the sort woven. Productivity is measured by two figures—efficiency and damage. Efficiency is reckoned as the number of yards produced in any shift, expressed as a percentage of the number of yards which could have been produced if looms had run continuously for the whole shift, no allowance being made for loading and unloading or for any other stops. Damage is calculated by the number of pieces rejected as not up to standard expressed as a percentage of the total number of pieces produced. The higher the efficiency and the lower the damage, the greater the productivity.

The wage system gives the line jobbers and weavers a bonus for quantity of production based on complex allowances for sorts, colour, and widths of cloth, but gives no bonus for quality. Bad quality is punished by warnings, fines, suspension, or discharge. Fines are limited by law to 1/32 of the total wage. Suspension is infrequently used; discharge rarely. Labour legislation makes discharge for anything except gross misconduct a lengthy, difficult, and complicated process. Fines are imposed by a clerk in the cloth room on the reports of folder-inspectors, all of whom are under the authority of

the Sales Department. The total of the fines which can be imposed on any weaver for bad quality is less than the bonus which he can earn by not stopping the loom to repair damage. Beam carriers and oilers are not paid any piece work rate or bonus.

Generally speaking, attention to quality is more important on the difficult sorts than on the simple sorts. The complex system of allowances for sorts, colour, and width is designed to compensate weavers for the necessarily slower work on the wider looms or the more difficult sorts. In practice, good weavers can always make a little more money by quicker work on simple sorts than by the compensated slower work on difficult sorts. In consequence, good weavers of adequate seniority always make strong claims to the simpler sorts, leaving the more difficult sorts to the less experienced and junior weavers.

Hours of Work

Two eight-hour shifts are worked, the day shift from 7 a.m. to 3.30 p.m. with a half-hour break between 11 a.m. and 11.30 a.m., and the night shift from 3.30 p.m. till midnight with a half-hour break between 7.30 p.m. and 8 p.m. No other breaks are organized, though it is the custom of the weavers to hand over their two looms to a neighbour and to spend periods of varying lengths outside the loom shed. These frequent and prolonged absences, which are now taken as a right, are said to be necessary owing to the difficult climatic conditions in India. They can be said, broadly speaking, to have been permitted largely as a result of the low wage rates previously paid in Indian industry. In the past it was perhaps easier and less expensive to add extra workers than to take steps to deal with those factors which made continuous attention to work difficult and unpleasant.

Under the climatic conditions of Ahmedabad relative humidity in the loom sheds has to be artificially maintained at 80–85 per cent to enable yarn to stand up to the strain put on it in the weaving process. Shade temperatures vary with the time of the year but seldom drop below 80° in the daytime, and rise to 118° in the hot season.

Supervision and Inspection—The Governing System

The line jobbers, each of whom is responsible for the maintenance of 40 looms, and therefore for the supervision of 20 weavers, are responsible to a head jobber. In addition, because of changing labour conditions a shed supervisor has been appointed for each shift of each mill, who, while not supervising the head jobber, is nevertheless held responsible for the conduct of the loom shed and for the quantity and quality of cloth produced. In effect, the loom sheds have two supervisors who are equal in status, and of whom one is responsible for technology and one for administration and personnel management.

In addition to the line jobbers and the oilers, who report to them, the

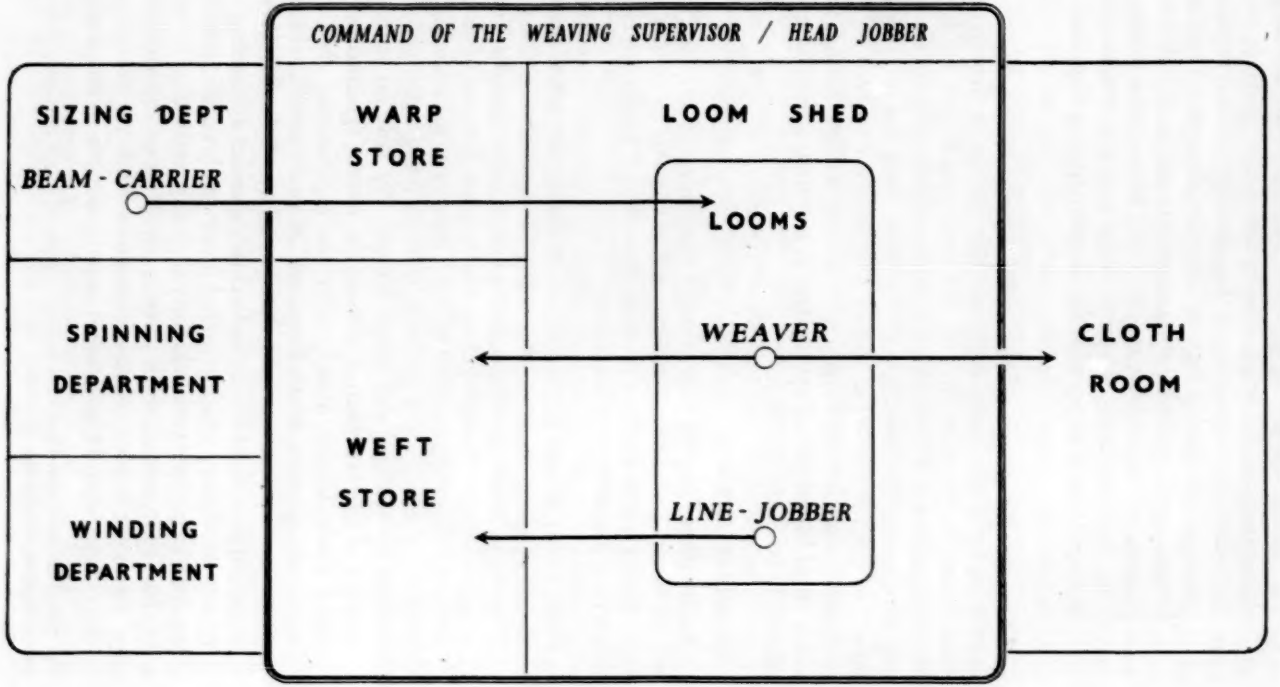
head jobber and the shed supervisor are also responsible for the specialists on the jacquard, drop-box, plush, and tape looms, the weft store workers, sweepers, as well as the carpenters, fitters, and cobblers who carry out major overhauls and repairs to the looms and driving mechanisms. In all, they have 66 different workers of varying skill and status reporting directly to them. They are, however, not responsible for the beam carriers, who perform some tasks in the warp store and in the loom shed, nor have they any authority over the folder-inspectors who examine and measure the cloth produced, nor over the cloth room clerk, who imposes the fines for bad quality.

Summary of Some Characteristics of the Existing Socio-Technical System

Consideration of the descriptions given in the preceding paragraphs and inspection of *Tables* 1 and 2 show that:

a. There is confusion as to the relative responsibilities of the head jobber and shed supervisor in relation to the weavers. Theoretically the head jobber is responsible for the control of jobbers and technical maintenance work, and hence for the quality of cloth woven. The supervisor is equally responsible for the work of the weavers and therefore has the line jobbers as his direct subordinates.
b. The beam carrier, who is under the authority of the head of the preparation department, not only performs carrying duties within the loom shed but is also responsible for one of the loading tasks on the looms.
c. The weaving supervisor and head jobber have direct responsibility for a very large number of workers at varying hierarchical levels, and, as a corollary to b, have no direct authority over some of those working in the department.
d. The weaver, who is primarily responsible both for quality and quantity of cloth, is subject to the authorities of jobber, head jobber, weaving supervisor, and sales department. He is also dependent upon the preparation department supervisor. He must move away from his looms to the weft store and to the cloth department to perform some tasks. The extensive range of movement of the weaver, and of other workers, is shown diagrammatically in *Figure* 3.
e. The weaver's task is, in spite of the various authorities, a "whole" task, that is he experiences within his own job the total task of the loom shed—the conversion of cotton yarn to cloth. Formally, in his role-relationships, he is an independent isolate, working on his own and making his own individual relationships with those in authority over him. Informally he makes supportive and mutually helpful relationships with his near neighbours who take over his looms in his absence and for whom he reciprocates in theirs.

FIGURE 3 RANGE OF MOVEMENT OF LINE-JOBBER, WEAVER AND BEAM-CARRIER IN PERFORMING LOOM-SHED TASKS



f. The pattern of formal isolation and informal mutual support is characteristic of the work roles in the shed.
g. The disciplinary procedures for damage, which require a direct executive relationship between the sales department and the weaver, by-pass not only the weaving supervisor and head jobber but also the jobbers, not to mention the Weaving Master who is responsible for both shifts in both A and B mills, and the Production Division Manager who is responsible for all spinning, weaving, and converting operations.

The first examination of the socio-technical system of non-automatic loom weaving immediately suggested that change in management policy about bonus for quantity, fines for bad quality, and rates for difficult sorts, and reconsideration of the multiple authorities responsible for weaving would help to improve the efficiency of the loom shed and in consequence the quality of cloth woven. The system had however worked well for many years and it was felt to be dangerous to assume, without testing, that changes which could be considered appropriate in a western industrial setting would necessarily be of use in India.

Limitations to Change

Before describing the experimental reorganization it is necessary briefly to refer to some of the limitations to change imposed by conditions in India. In the Indian textile industry there are three major barriers to change either of working practices or of conditions.

1. In India only a small portion of the working population is employed in industry and a great part of that engaged in agriculture is under-employed. One of the major problems facing Government and the Trade Unions is the enormous unemployment which exists. Because of this, "rationalization"—the reorganization of work systems or the introduction of new machinery which result in fewer workers being employed—is strongly resisted by workers and Trade Unions. By law, no reduction in the number of jobs is permitted without the written agreement of the recognized Trade Union. Shortly after the experimental shed had started work, an agitation directed against "rationalization", which had been simmering for many months, flared up all over India. Members of Parliament and prominent labour leaders made speeches demanding the banning of new machinery which required fewer workers. In Ahmedabad, processions of protest were held daily.
2. No change in current work practice except in an experimental situation is permitted by law without agreement with the recognized union.[2] Agreement with the recognized union, even where obtainable, does not

2. During the experimental period the law was amended to include experimental changes among the changes requiring agreement.

however automatically ensure that a change can take place. Some agreements are enabling agreements only, and neither management nor union has the power to compel workers to accept the changes agreed. Only after an enabling agreement has been made and the workers themselves have consented to the change, is change permitted. Some months earlier, in July 1953, an agreement had been reached between the Millowners' Association and the Textile Labour Association—the recognized union—to allow weavers to work four looms. In spite of increased wages, Rs. 100 as against Rs. 66 exclusive of dearness allowance, only two mills of which one was the Calico Mills had succeeded in getting the agreement implemented for the first or second shifts. (In the Calico Mills only 48 looms were working at four looms to a weaver, and that after great difficulty and at low efficiency and high damage rates. In the other mill the agreement was implemented only under the threat of closure.) The agreement did, however, provide the opportunity, with workers' support, to make some reductions in the number of jobs in the weaving sheds.

3. India is divided into surplus and deficit areas as to production and consumption. The Calico Mills is situated in a surplus production area for cotton textiles and is, in consequence, restricted by law as to the number of looms and spindles it can work. The quota of looms in the Calico Mills is fully used and the mills are not permitted to work more than the allowed number on any day. This means that workers who might be displaced by any experimental reorganization could not be absorbed by expanding the number of looms worked. To erect an experimental shed looms had to be obtained from other sheds in the mill and looms could only be transferred when they were vacant on both shifts either through prolonged absence or retirement.

Because of absenteeism and some retirements it was found possible to erect at once 24 looms in an experimental shed, and over the next few weeks, because of further retirements on gratuity, other looms gradually became available.

II. ANALYSIS OF NON-AUTOMATIC LOOM WEAVING TASKS AND A DESCRIPTION OF THE REORGANIZATION

Standardization of Sort

A change of yarn count (fineness of yarn) or a change of sort (kind of cloth woven) usually requires some change of loom setting and tuning. An examination of the production records showed that in spite of the great variety of cloth woven some sorts were woven regularly and that therefore a proportion of the looms could, if required, weave the same cloth more or less continuously. It was assumed that if looms could be kept on the same

sorts continuously and if workers could always weave one sort, not only would loom tuning, maintenance, and adjustment become more efficient but workers would become more skilled in the handling of the particular problems raised by a specific sort. A first suggestion for experiment to improve quality therefore was to work a group of looms and a group of workers continuously on the same sort, provided that adequate adjustments could be made in the wage system, so that experienced weavers would not continually claim simpler sorts.

It was recognized, however, that although some looms might be kept continuously on the same sort in an experimental situation, some variations of sort, due to changes in market demands, would always have to be provided for. Even experimentally, attention to other stages of the manufacturing process might introduce variations in the quality of weft and warp supplied to the loom sheds and in consequence working conditions might vary.

Variation in the amount of work involved in weaving can be controlled in three ways:

1. by varying sorts of different complexity for a fixed number of workers on a fixed number of looms;
2. by varying the number of looms for a fixed number of workers; and
3. by varying the number of workers for a fixed number of looms.

The first way is usual for diverse production in the textile industry. The need to standardize and the complexities of the wage system suggested that as a method of obtaining flexibility it should be kept to a minimum. The consideration that workers, provided they accept movement, are easier to move than looms suggested that the third method should be preferred to the second. It was recognized however that variation of the number of workers for a fixed number of looms, or of the number of looms for a fixed number of workers, has been the subject of frequent disputes between management and workers, not only in India but in most countries which have been faced with problems of development and redeployment.

Task and Work-Group Organization

Eight general working principles were made about task and work-group organization:

1. Irrespective of wages and working conditions, a work-group will derive satisfaction from the efficient organization and performance of the task for which it has been organized, and an inefficient organization or performance will diminish the chances of satisfaction. A work-group should therefore have neither more nor fewer members than can efficiently complete a given task.
2. Since task-completion is believed to be an important source of satisfaction,

a work-group should be of such a size that its members can experience so far as is practicable, the completion of a "whole" task.

3. When individual tasks performed by members of a work-group are interdependent, the relationships between those performing the tasks will have important effects on productivity. A work-group should therefore provide its members with satisfactory interpersonal relationships.
4. Since practical self-government can provide satisfaction for group members, a work-group should have control over its own day-to-day work and organization, that is, its "governing system" should be internally structured.
5. The coincidence of obvious physical and activity boundaries enables a work group to identify itself with its own "territory"; and, as a corollary, groups of workers "owning their territory" are more likely to form internally structured, stable, and cohesive group relationships than those in indeterminate or overlapping territories.
6. The range of skills required of group members should be such that all of them can comprehend all the skills, and, without necessarily having or wanting to have these skills, could all aspire towards their acquisition.
7. The fewer differences there are in work-group status (and pay) consistent with offering opportunities for promotion, the more likely is the internal structure of a group to stabilize itself, and the more likely are its members to accept internal leadership.
8. When individual members of small work-groups become disaffected to the extent that they can no longer fit into their work-group, they need, if group stability is to be maintained, to be able to move to other small work-groups engaged on similar tasks.

Consideration of the usually highly structured form of Indian society and of the current attempts to increase status mobility within the society suggested, in addition to the general principles, a tentative hypothesis about work-group organization under Indian conditions:

> *The tasks performed by members of the group should be differentiated according to the skills required and the equipment used, and tasks requiring different skills should be hierarchically structured. The organization should provide opportunities for change in status within the group. As a corollary, tasks requiring related skills should provide some opportunities of mobility (i.e. interchange) between members of the group.*

On these assumptions the smallest number of workers that can perform a whole task, and at the same time satisfy their relationship needs, would be, from the point of view of the work involved, the most satisfactory group. So far as is known, except for those individuals who prefer isolation, the smallest productive and satisfactory group is a pair and the next most satisfactory, a group of from seven to twelve, with perhaps the most satisfactory

of these from seven to nine. Because a pair is an inflexible group, and flexibility in the allocation of work would therefore need to be achieved by a variation in the number of looms for a fixed number of workers, it was decided that until standard conditions of a required order could be maintained, attention should be directed to the possibility of creating small internally led work-groups of from 7 to 12 workers.

Classification of Loom Shed Tasks

The tasks of the loom shed may be differentiated with respect to:

1. Task area—the area over which the task is performed.
2. Time Period—a. Long-stop, when the loom is stopped for loading a new beam or for a smash. During loading stops the loom is cleaned and oiled, adjustments are made, maintenance is carried out, and the loom is tuned before restarting. These stops vary from half-an-hour to several hours.
   b. Short-stop, when the loom is stopped for re-shuttling, attending to faults at the back of the loom, or for mending a warp-end break. These stops are of seconds or minutes.
   c. Running—tasks which are performed on the loom while it is running—oiling, weft distributing, and cloth removing.
   d. For some tasks, not directly concerned with looms, loom stopping is irrelevant.
3. Skills—a. Fitting—the capacity to maintain and adjust looms.
   b. Weaving—the capacity to weave cloth in looms.
   c. Minimal—unskilled in either of the above senses.
4. Condition—a.—The handling of yarn requiring clean hands.
   b. The handling of machinery involving dirty hands.

The tasks of the loom shed, given in *Table* 1, were reordered to this classification. The results are given in *Table* 3 on page 215.

Inspection of *Table* 3 shows that the tasks in the loom task area complete a whole task of converting yarn to cloth; that the tasks of shuttling, warp mending, fault prevention, smash tenting, and gating are consistent as to skill and condition and the first three as to time period; that oiling (routine), weft distributing, cloth removing, warp and weft carrying, and cloth carrying are consistent as to skill and time period but inconsistent as to task area and condition; and that oiling (routine) and oiling (gating) are consistent as to skill and condition but inconsistent as to time period. All the tasks in the table require skills which could be comprehended by a worker performing any one of them.

TABLE 3 *RE-CLASSIFICATION OF LOOM SHED TASKS*

Task Area	*Time Period*	*Task*	*Skill Required*	*Condition*
Loom	Short-stop	Shuttling	Weaving	Clean
		Warp Mending		
		Fault Prevention		
	Long-stop	Smash Tenting		
		Gating		
		Maintaining	Fitting	
		Oiling (Gating)	Minimal	Dirty
		Warp Mounting		
	Running	Oiling (Routine)		
		Weft Distributing		
		Cloth Removing		
Loom Shed		Warp Carrying		Clean
		Weft Carrying		
Outside Loom Shed		Cloth Carrying		

It appears from this inspection, therefore, that, provided

1. the tasks performed in the loom activity area could be adequately distributed among the members of a small work-group,
2. the shed could be of such a size that the warp and weft store could be close to all looms, and
3. the carrying of cloth outside the shed could be eliminated,

then the tasks and work-group organization of such a work-group could satisfy many of the conditions laid down in the working principles about task and work-group organization stated previously.

Work-Load Studies of Tasks

During the examination of the tasks of weaving in non-automatic loom

sheds a number of work-load studies were made. In the studies each component operation was treated as a task in itself and it was assumed that waiting time between successive performances of an operation would be filled, not as in the existing system, by other operations, but in carrying out the same operation on other looms. It was found that, with beams of constant size, the tasks could be divided into three major groups:

1. those which varied with the number of loom stoppages per hour,
2. those which varied with the weft count and package size, and
3. those which remained fairly constant.

The work-loads of the tasks of warp mending and smash tenting varied directly with the number of stoppages caused by these faults. The relationship was, however, not linear since, regarded as tasks on their own, the fewer stoppages there were the more walking would have to be done between stoppages. The work-load of the tasks of fault prevention at the back of the loom also varied directly with the quality of the beams, but at more than four stoppages per loom per hour there appeared to be a limited amount that could be achieved by fault prevention. Beyond four stoppages per loom per hour the number of looms to which a worker could theoretically attend remained approximately the same. The work-load of the task of shuttling was found to vary inversely with the package size and with the count. The higher the count, the finer the yarn and therefore the more yarn to a given size of weft package and hence the longer the shuttle would last without change. Again the relationship was not linear since the fewer the stops required for shuttling the more the looms which could be attended and the more the walking to be done. The work-loads of all "variable" tasks were also found to vary with the sort being woven, the yarn count, and the colour, but the variations were no more than could be accounted for as random variations due to sampling, and were therefore ignored. It was accepted that, on the whole, working with coloured yarn of fine counts at high reeds (large number of warp threads to the inch) was more difficult and the work-loads higher than for sorts requiring only low counts (coarse yarn) of grey (undyed) yarn at lower reeds (small number of warp threads to the inch). Since it was emphasized that the number of workers required to work a given number of looms on a given sort would be determined finally by experience in an experimental situation and not by work-load studies, more elaborate studies were not made.

The first studies were, of necessity, based on current practices in the existing loom sheds, in particular, on looms on which the workers were unaccustomed to work with warp-stop motions.[3] Adjustments were subsequently made in the early days of the experimental shed. Apart from changes in practices which were expected to be made experimentally and which

3. The workers agreed to these being fitted experimentally on being guaranteed average piece-work earnings irrespective of quantity produced.

might make the too elaborate study of current practices irrevelant, the intention to determine work-loads by experience also avoided the difficult question of the general validity of time studies as major determinants for work-load allocation. The figures were only intended to give a first approximation of an appropriate number of workers for a given number of looms.

The figures did however suggest very strongly that the present standards of two looms to a weaver were low, and that workers were capable of higher productivity—that is, that either fewer workers could manage more looms, or that both quality and quantity of output could be improved. In effect the experiment would be directed to establishing a new norm of performance. It was therefore decided that any experiments would be made with the most difficult sort commonly woven in the mill—mutli-coloured single-ended striped shirting, that is, striped shirting in which the warp threads varied in colour from single thread to single thread and were not arranged in groups of the same colour. It was also decided that the experimental looms would be fitted with warp-stop motions. The determination of the sort fixed the count of the weft yarn and the size of the weft package, and hence transferred the task of shuttling from the "variable" to the "constant" category.

TABLE 4 *WORK-LOAD STUDIES OF LOOM SHED TASKS:*

a. VARIABLE WORK-LOADS

Task	*Number of Looms which could be managed by One Worker at 85% Efficiency with Variable Number of Loom Stoppages per Loom per Hour of:*							
	0·5–1·5	1·5–2·5	2·5–3·5	3·5–4·0	4·0–4·5	4·5–5·0	5·0–5·5	5·5–6·0
Warp Mending	36	20	13	10	8	7	6	5
Fault Prevention	200	100	40	30	30	30	30	30
Smash Tenting	100	60	40	30	25	23	21	20

b. CONSTANT WORK-LOADS

Task	*Number of Looms per Worker at 85% Efficiency*
Shuttling	12
Gating and Maintaining	60
Oiling (Gating)	400
Warp Mounting*	1000
Oiling (Routine)	128
Weft Distributing*	120
Cloth Removing*	300

* Warp mounting here included warp carrying provided the warp store was close to looms and the brackets at the backs of looms were easily accessible. In the same way weft distributing included weft carrying from a near weft store and cloth removing included carrying the cloth to a central point in a small loom shed.

Experience of non-automatic loom weaving suggested that an efficiency of 85 per cent be taken as attainable. The figures obtained from the studies were adjusted for observed efficiencies and were compared with figures of similar studies made in the United States and Great Britain and when allowance was made for sort, yarn count, package size, and variation in methods of measuring efficiency the figures were comparable. The figures of the work-loads, which are given in *Table* 4 on page 217 are not all derived from studies of actual working since not all loom stoppage rates were available for observation. They are made up by studies and interpolations after discussions with those with long weaving experience. The figures show the theoretical number of looms which could be managed by one worker if he devoted himself exclusively to one specific task with normal allowances for fatigue and other contingencies.

First Experimental Groups

The first twenty-four looms became available on January 1st, 1954. They were erected, gated, tuned, and got running by January 15th. It had been observed during the work-load studies that weavers were reluctant to do fault prevention work at the backs of looms, because so much of their work was at the fronts. It was therefore decided to try an experimental

TABLE 5 *THEORETICAL NUMBER OF WORKERS FOR GROUP OF 24 LOOMS AT 4 LOOM STOPPAGES PER LOOM PER HOUR*

Time Period	*Task*	*Theoretical Number of Workers*	*Totals*
Short-stop	Shuttling	2·0	2·0
	Warp Mending	2·4	3·2
	Fault Prevention	0·8	
Long-stop	Smash Tenting	0·8	0·8
	Gating and Maintaining	0·4	0·4
	Oiling (Gating) Warp Mounting	0·3	0·6
Running	Oiling (Routine)		
	Weft Distributing Cloth Removing	0·3	
	Totals	7·0	7·0

arrangement of back to front looms, instead of the traditional arrangement of looms facing each other. The first twenty-four looms were therefore arranged in three rows of eight, all facing the same direction.

Examination of the analysis of *Table* 3 suggested that the constant workload task of shuttling could be separated from the other weaving tasks, that the skills required for gating and maintaining were such that a worker performing both would be the natural group leader, and that the tasks requiring minimal skill, oiling, warp mounting, weft distributing, and cloth removing could be sufficiently separated in time that if they were performed by one worker, the inconsistency in condition would not affect efficient working. A loom stoppage rate of four per loom per hour was expected. The theoretical numbers of workers required for twenty-four looms at these loom stoppage rates, based on the figures of *Table* 4, are shown in *Table* 5 on page 218.

The actual numbers of the first experimental groups, one on each of

TABLE 6 *NUMBERS, OCCUPATIONAL ROLES, TASKS, AND SOCIAL ORGANIZATION OF FIRST EXPERIMENTAL GROUP OF 24 LOOMS*

Occupational Roles	*Actual Number*	*Theoretical Number*	*Tasks*	*Lines of Responsibility*
Group Leader	1	0·4	Gating, maintaining, and helping other members of group with their tasks	Directly responsible for work of group
Loom Workers	3	3·2	Warp mending and fault prevention on 8 looms each	Responsible to Group Leader; receives assistance from other group members
Shuttlers	2	2·0	Shuttling	Work as a pair over 24 looms. Responsible to Group Leader
Smash Tenter	1	0·8	Smash tenting and helping loom workers with warp mending	Responsible to Group Leader
Helper	1	0·6	Oiling (gating), warp mounting, oiling (routine), weft distributing and cloth removing plus general help with other group tasks	Acts as assistant to Group Leader
Totals	8	7·0		

two shifts, their occupational roles, tasks, and lines of responsibility are shown in *Table* 6 on page 219.

Because of disturbance to the looms in dismantling and re-erecting, of inexperience in the preparation of beams for looms fitted with warp-stop motions, and of difficulties with the humidification of a shed long empty, the loom stoppage rates of the first beams were far higher than had been expected. On some looms the stoppage rate was as high as twelve per loom per hour and the best more than six. There was also an abnormally high number of smashes. On one day there were fourteen smashes on the twenty-four looms in one shift, four of them each taking more than four hours to repair. The workers were unfamiliar with the new method of working and there were too few of them to deal with such high breakage rates. Extra help was given at once but with apparently little result. The one idea of the new methods of work which had been assimilated was that the members of the group should help each other. They appeared to vie with each other in giving up their own jobs to help somebody else in difficulties. For the first few days all appeared to be confusion and chaos.

Change of Work Organization

In spite of the confused and inefficient working, the experience gained led, in discussion with the workers, to three modifications of the work organization:

1. When a loom stopped it was impossible, without inspection, to tell whether it was for want of shuttling or for another cause. In spite of rushing all over the group of looms the shuttlers could not avoid looms standing idle for want of new weft. It was felt that even with mechanical or electrical signals showing the cause of a stoppage, stoppage rates of not more than 1·0 per loom per hour would be necessary before the differentiation of shuttling from warp mending could be efficient. It was decided to experiment with the differentiation of shuttling, warp mending, and fault prevention into "front work" and "back work". In the scope of front work would be included shuttling and some warp-mending; in that of back work would be included fault prevention and that part of warp mending which could be reached from the backs of looms. This differentiation was tried, and even with high breakage rates an immediate improvement was felt both in efficiency and in comfort.
2. It was decided to control loom stoppage rates by reducing loom speeds. Looms installed up to this time had been running at the same speed as in other sheds. Experiments to try to control the breakage rates by a reduction in speed were started on February 12th. As a result of experience it was agreed that by attention to preparation and by control of loom speeds a standard loom stoppage rate of $3{\cdot}0 \pm 0{\cdot}5$ per loom per hour could be attained.

3. Examination of the shed showed that it could most conveniently hold 120 looms in twelve rows of ten looms each. The loom groups for experimental purposes were therefore fixed at forty arranged in four rows of ten, and, since back work and front work were now differentiated, and the importance of back work accepted, they were arranged in the conventional face-to-face pattern but with wider spaces between the rows of looms than was usual in other sheds.

The theoretical number of workers for forty looms, based on the work-load studies of *Table* 4, are given in *Table* 7 below.

TABLE 7 *THEORETICAL NUMBER OF WORKERS REQUIRED FOR A GROUP OF 40 LOOMS*

a. VARIABLE WORK-LOADS

Task	*Number of Workers at Variable Loom Stoppages per Loom per Hour*							
	0·5–1·5	1·5–2·5	2·5–3·5	3·5–4·0	4·0–4·5	4·5–5·0	5·0–5·5	5·5–6·0
Warp Mending	1·1	2·0	3·1	4·0	5·0	5·7	6·7	8·0
Fault Prevention	0·2	0·4	1·0	1·3	1·3	1·3	1·3	1·3
Smash Tenting	0·4	0·7	1·0	1·3	1·6	1·7	1·9	2·0
Totals	1·7	3·1	5·1	6·6	7·9	8·7	9·9	11·3

b. CONSTANT WORK-LOADS

Task	*Number of Workers*	*Totals*
Shuttling	3·33	3·33
Gating and Maintaining	0·67	0·67
Oiling (Gating)	0·10	
Warp Mounting	0·04	
Oiling (Routine)	0·31	
Weft Distributing	0·33	
Cloth Removing	0·13	
		0·91
Totals	4·91	4·91

The actual number of workers for each experimental group of forty looms, the theoretical numbers, the occupational roles, tasks, and lines of responsibility are shown in *Table* 8 on page 222.

TABLE 8 *OCCUPATIONAL ROLES, NUMBERS, TASKS, AND LINES OF RESPONSIBILITY OF EXPERIMENTAL GROUPS OF 40 LOOMS AT LOOM STOPPAGE RATES OF 3·0–0·5 PER LOOM PER HOUR*

Occupational Roles	*Numbers* Theoretical	Actual	*Tasks*	*Lines of Responsibility*
Group Leader	0·7	1	Gating and Maintaining Group Leading	Responsible for work of group
Smash Tenter	1·0	1	Smash Tenting, Deputy Group Leader	Responsible to Group Leader
Front Worker	7·4	4	Shuttling, Front Warp Mending	Two front workers and two back workers work as a quartet on 20 looms. Responsible to Group Leader
Back Worker		4	Fault Prevention, Back Warp Mending	
Helper	0·9	1	Oiling (gating) Warp Mounting Oiling (routine) Weft Distributing Cloth Removing	Acts as assistant to Group Leader
Totals	10·0	11		

At the beginning the front workers and back workers worked as a pair, each pair being responsible for a line of ten looms. The workers themselves chose the final form of organization of quartets of front and back workers for twenty looms. The position of the looms and the ambits of front and back workers are shown diagrammatically in *Figure* 4 on page 223. It will be seen that the space between the rows of looms is wider than in the other loom sheds (*Figure* 2) but that the spaces between the pairs of looms in the rows is narrower. The greater space between rows was necessary to allow workers to pass each other and to make loom brackets readily accessible for gating.

It will be readily appreciated that some of the apparent correspondence between the theoretical and the actual number of workers in *Table* 8 is caused by the difficulty of defining the border-line between some tasks and by the willingness of members of the group to assist each other. The difference, for example, between a warp break and a smash is sometimes unclear, and front workers, back workers, smash tenter, and (on occasions) the helper shared the work between themselves. In the same way back workers who found themselves underloaded when loom stoppages were lower than 3·0 per loom per hour, spent some time helping with front work.

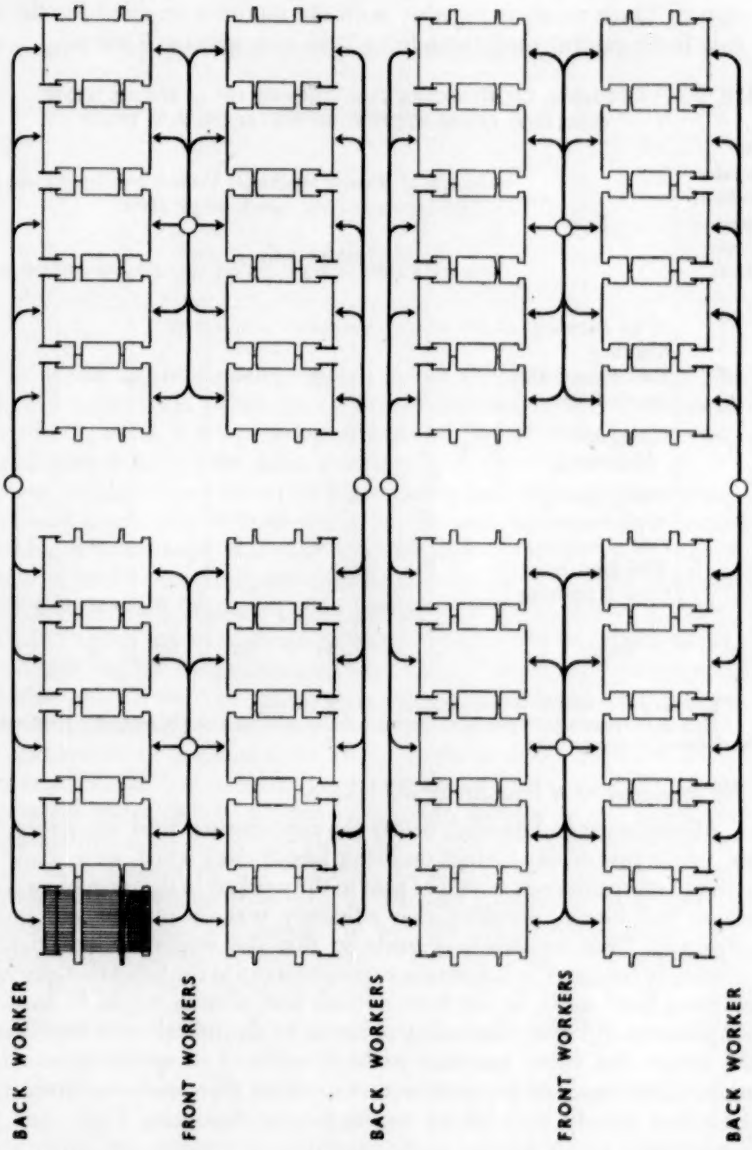


FIGURE 4 *POSITION OF LOOMS AND AMBITS OF FRONT AND BACK WORKERS IN A BLOCK OF 40 LOOMS*

As a result of experience with the first experimental groups, standards of the number of workers required for variable loom stoppage rates with a constant shuttling rate of 6–7 per loom per hour were determined and agreed. These numbers together with the numbers required for the same tasks in the existing sheds taken from *Table* 2 are given in *Table* 9.

TABLE 9 *NUMBER OF WORKERS FOR GROUPS OF 40 LOOMS WITH VARIABLE LOOM STOPPAGES PER LOOM PER HOUR*

Equivalent Number of Workers in Existing Sheds	*Tasks*	*Number of Workers required for Variable Number of Loom Stoppages per Loom per Hour*							
		0·5–1·5	1·5–2·5	2·5–3·5	3·5–4·0	4·0–4·5	4·5–5·0	5·0–5·5	5·5–6·0
20*	Warp Mending Shuttling Fault Prevention Smash Tenting	5	7	9	10	11	12	13	15
1	Gating and Maintaining	1	1	1	1	1	1	1	1
1	Oiling (gating) Warp Mounting Oiling (routine) Weft Distributing Cloth Removing	1	1	1	1	1	1	1	1
22	Totals	7	9	11	12	13†	14	15	17

* Includes part of tasks of weft distributing and cloth carrying.

† At these stoppage rates the numbers of looms in the loom group would be reduced to allow a smaller work-group to manage them.

The Measurement of Productivity and Wages

Management had decided, before the experimental shed was set up, that the major part of any savings on direct labour costs which were made as a result of reorganization would be paid to the workers in the form of increased wages and bonus, provided that efficiency was maintained and quality improved. This decision was made so that the wages offered could be sufficiently attractive to initiate the experiment and in the belief that, provided no losses were made on the most difficult sort, savings would be made on simpler sorts and when the quality of beams on the difficult sorts improved to the extent that either numbers could be reduced or speeds increased. In addition, standards of payment well in excess of those in the ordinary loom sheds had already been set up in the Jubilee Automatic loom shed (1). Furthermore, partly because of the experimental situation and partly as the first step in the implementation of a new wages policy, it was decided to

pay basic minimum wages irrespective of performance. The grades, occupational roles, and basic minimum wages agreed for the experimental groups are shown in *Table* 10 below.

TABLE 10 *GRADES AND WAGES FOR EXPERIMENTAL GROUP*

Grade	*Occupational Role*	*Basic Rates**
A	Group Leader	145
B+	Smash Tenter and Deputy Group Leader	125
B	Front Worker	115
C	Back Worker, formerly Shuttler	90
D	Helper	55

* These rates are exclusive of Dearness Allowance.

The grades and wages were agreed before the differentiation of front work and back work. When this differentiation was made, a temporary grade of C+ at Rs. 100 was introduced for existing C grade workers who changed over to back work from shuttling.

It was decided to pay bonus for both quality and quantity. It was recognized that it would have been simpler to pay flat rates during an experimental period but it was also felt that those who would be recruited for the experiment were used to receiving some form of bonus for their effort, and that, provided their work justified it, they should continue to receive it.

To pay bonus for quality and quantity which could be related to each other meant that the basis of measurement of both quality and quantity had to be changed. Damage in the existing sheds was measured by calculating the number of damaged pieces as a percentage of pieces of cloth woven, but since weavers from different shifts shared in the weaving of pieces, disciplinary action could only be taken for specific damage and not for the number of damaged pieces. It was decided to measure damage as the number of damages occurring in 1,000 yards of cloth woven. It was also decided that, because cloth lengths vary in different manufacturing processes, quantity bonus should be based not upon yards woven but upon efficiency, as measured by the number of picks (the number of weft threads inserted) expressed as a percentage of the number of picks possible. Consideration of the standards of work in the other loom sheds led to:

a. Quantity bonus—1½% of basic wages for every 1% increase in efficiency over 70%

b. Quality bonus—1½% of basic wages for every damage less than 12 damages per 1,000 yards

Since the emphasis in the experiment was on an improvement of quality it was agreed that no quantity bonus would be paid unless the quality bonus

was also earned, but that short-fall in quantity bonus could be offset by quality bonus. For example, a group weaving cloth with four damages per 1,000 yards would earn 12 per cent bonus for quality; if it only produced at 68 per cent efficiency the bonus paid would be 12%–3% = 9%. On the other hand, a group which gave 80 per cent efficiency but 13 damages per 1,000 yards would receive no bonus. Such an arrangement was only made possible by guaranteeing basic minimum rates, all of which will be seen, by comparing *Tables* 2 and 10, to be higher than the earnings for equivalent skills in other loom sheds.

Hours of Work

So far as could be discovered no experimental work had been done in India on optimum periods of work. It was felt, however, that the existing hours of work requiring two four-hour work spells with only half an hour break between was asking too much under Indian conditions. The need for other breaks was accepted, but one of the difficulties of the existing arrangements was that breaks were organized on an individual basis and there was no coordination of them or control over them. Further, since looms were not fitted with warp-stop motions, and bonus for quantity exceeded any possible fine for bad quality, there was no incentive on the part of a worker, left to look after his neighbour's looms, to do other than keep the looms running irrespective of the quality of the cloth woven. Several possible shift arrangements were discussed and it was decided to experiment with three shifts each of seven hours in an eight-hour spreadover, allowing for three organized breaks, two of fifteen minutes and one of thirty minutes during each shift. Because of factory legislation with regard to third shift working it was regarded as unlikely that complete shift rotation would be possible. It was therefore decided to start with two rotating shifts of seven hours and to add a permanent third shift once a method of working had been successfully established.

It was also agreed that once the initial experimental period was over, entry to the shed would be through the third shift, that is, any vacancies in the first and second shifts would be filled from the third shift.

Supervision and Inspection—The Governing System

It was agreed that the experimental shed would be put in charge of a senior supervisor, to whom would be responsible one supervisor for each shift. It was believed that if the experiment proved successful and spreading became possible one shift supervisor would be able to deal with six or seven groups of forty looms each.

Since one of the main reasons for the setting-up of the experimental shed was to improve quality, it was important that responsibility for quality as well as quantity should be placed firmly upon the senior supervisor and through him on shift supervisors, group leaders, and workers in the shed.

Although the level at which the management control mechanisms of inspection and measuring were required or were desirable could not be finally determined, the principle was accepted that the farther down the managerial hierarchy responsibility for self-inspection and self-criticism could be placed and accepted, the better. Because cloth taken from a loom in any shift would be the product of all shifts it was decided that inspection should be made the direct responsibility of the senior supervisor. An inspection section was set up within the loom shed itself and cloth carrying outside the shed as a task for those engaged in loom work groups was thus eliminated. It was decided to leave the actual organization of inspection to be discovered after the experiment had started but it was agreed in principle that, once there were enough, the inspectors should be organized as a working group with their own group leader. With the establishment of such a system of inspection and with bonus for quality as well as quantity, it was agreed that the method of fining workers for bad quality would be abandoned.

The occupational roles, tasks, and lines of responsibility of the governing system of the experimental shed are shown in *Table* 11 below.

TABLE 11 *ROLES, TASKS, AND LINES OF RESPONSIBILITY OF GOVERNING SYSTEM OF THE EXPERIMENTAL SHED*

Occupational Role	*Tasks*	*Lines of Responsibility*
Senior Supervisor	Manage through subordinates all activities of the loom shed; obtain from main loom shed such services as are not available within the shed itself; coordinate raw material supplies and cloth deliveries with relevant departments. Responsible for quality and quantity of production and maintenance	Responsible directly for shift supervisors and inspectors
Shift Supervisor	Manage through group leaders activities of one shift; provide services from within departments as required. Responsible for quality and quantity of shift production, for loom maintenance, and for records of output and quality of each group	Responsible to Senior Supervisor, has direct authority over group leaders and ancillary workers in the shed at any time
Inspector	Fold, inspect, measure, and record quantity and quality of output	Responsible to Senior Supervisor for work and method of doing it; in Senior Supervisor's absence answerable to Shift Supervisor

Permanent and Temporary Workers

The custom in India is to divide the workers of any employing institution into two categories, *permanent* and *badli*. Permanent workers are those who are guaranteed employment on any day on which they present themselves for work; *badli* workers are those who only obtain employment if it is available because of absent permanent workers. It is the custom of the *badli* workers to present themselves for work at the mill every morning and for those who do not succeed in obtaining work to return home.[4]

Management agreed that no worker, permanent or *badli*, would be unemployed as a result either of setting up the experimental shed or of any spreading of the experiment, if it proved successful. It was announced that all the workers engaged in the experimental shed would be given permanent passes, and that such a number of permanent passes in excess of the number required in the shed would be issued as would take care of normal absenteeism. Management guaranteed that on those occasions in which there were fewer absentees than usual, work would be found for the surplus.

The problem of communication of management's intentions to so large a number as those employed in the Mills when management itself was still ignorant of the results of any experiment was formidable. There was a danger that if the attempt were made to discuss the experiment with the workers, the process would itself need elaborate experimentation and would take so long that the real experiment would be inordinately delayed. Equally, if the experiment were conducted in isolation, as for example by taking over a closed mill elsewhere in Ahmedabad, there was the danger that the rumours about it would result in a distorted picture of the activity and that the eventual introduction of any new working methods into the Calico Mills would, in consequence, be strongly resisted. It was decided to inform the Trade Union of what was being done and to invite applications for the experimental shed from workers in the other loom sheds, and to discuss in detail with applicants what was proposed and what outcome was hoped for. It was also decided to use, as an experimental shed, an empty shed which had for a long time been used as a main thoroughfare through the mill. Although the use as a thoroughfare would cause disturbance it was felt that it would allow any workers in the mill who were interested to be able to see for themselves what was going on. After the experimental shed had been in existence for a short time an open invitation to visit it was extended to all the officials of the Trade Union.

III. RESULTS OF THE REORGANIZATION

Nine Phases of the Experimental Period

The experimental period started on January 15th, 1954. It can be said to

4. Partly because of climatic conditions, traditional family ceremonies, and religious holidays, absenteeism in India tends to be higher than in the United Kingdom.

have ended on November 14th, 1954, when the shed, with two groups of forty looms working and the third group of forty looms in the final stages of erection, was accepted by the Production Division of the mill as a manufacturing unit.

The experimental period can be divided into nine phases, each of which was characterized by some changes in the experimental conditions or by some event, either internal or external to the mill, which affected the shed. These changes and events are shown in their chronological order in *Table* 12 on page 230. In the "Experimental Groups" and the "Looms Working" columns, different loom groups are designated by letters and numbers, thus CI & CII—24 means that twenty-four looms were working with two groups of workers, one in each of the first and second shifts. The major organizational and technological changes have already been described in Part II, comments on the internal and external events shown in *Table* 12 and the figures of production results and costs are given in the following sections.

The Development of Permissive and Collaborative Relationships

As soon as it started, the experimental shed attracted large numbers of visitors from other parts of the mill. Apart from the concern that was felt about the neglect of work in the departments from which they came the visitors were welcome even though they frequently caused difficulties by participating in the work of the shed. On one occasion in the first phase it was found that there were twice as many workers as were provided by the experiment working on the group of looms; the additions were all visitors who were giving a hand because of the high loom-stoppage rates. It was not always easy to make them understand that if they participated in the work of the shed it would be impossible to get any adequate experimental results. Their attitude, and it was shared to a large extent by the workers of the experimental shed, was that top management would not authorize such high minimum rates of pay without immediate results. "Experiment" had little meaning for them and management's statements of its intentions had obviously not carried complete conviction. The influx of visitors and their participation in the work of the experimental shed made the confusion of the first few days, already bad enough, even more chaotic, but as methods of communication to the rest of the mill they could hardly have been bettered. There was, as far as could be seen, little reaction in the other loom sheds, and the only comments reported, while being suspicious of management's intentions, nevertheless showed interest in the potential success of the experiment.

More important than management's statements of intention in the building of permissive and collaborative relationships was its behaviour. Since the shed was an experimental shed it had been announced that it would be appropriate, whenever necessary, to stop the looms to hold discussions with the workers. The first time the looms were so stopped the workers

TABLE 12 *COURSE OF CHANGES AND EVENTS IN THE NINE PHASES OF THE EXPERIMENTAL PERIOD JANUARY 15, 1954–NOVEMBER 14, 1954*

Phase	*Period*	*Working Days*	*Experimental Groups*	*Looms Working*	*Characteristics of Socio-Technical System; Organizational Technological Change*	*Internal Events*	*External Events*
1	Jan. 15–Jan. 29	14	CI & CII	24	Differentiation of shuttling from warp mending and fault prevention. Extra help given for high stoppage rates	First Conference Jan. 21. Discussion of working methods	
2	Jan. 30–Feb. 20	19	CI & CII	24	Differentiation of front work and back work. Experiments in control of loom stoppages by variations in speed	Second Conference Feb. 10. Discussion of working methods and bonus payments	
3	Feb. 21–March 24	27	CI & CII AI & AII	36 24	Pairs of front and back workers; loom stoppage rates standardized at 3·0 ± 0·5 per loom per hour	Third Conference March 10. Group bonus payment decided by first shift	
4	March 25–Apr. 13	17	CI & CII AI & AII	40 24	Final form of work organization started in CI and CII—quartets of front and back workers	Group bonus payment asked for by second shift	Flare-up of national campaign against automatic looms and other forms of rationalization
5	April 14–May 3	17	CI & CII AI & AII	40 40	AI and AII groups started final form of work organization	Workers stop staggering of break on appearance of General Manager. "R" passes issued	Increasing force in campaign against rationalization. Daily Press articles and speeches
6	May 4–May 14	10	CI, CII, CIII AI, AII, AIII	40 40	Third shift started	Fourth Conference May 12. Discussion of campaign against rationalization. Experimental workers hooted in Mill	Mill gates picketed by workers from other mills in attempt to stop third shift
7	May 15–June 11	24	CI, CII, CIII AI, AII, AIII BI, BII, BIII	40 40 20	Increase in loom stoppage rates	Enabling agreement signed between Trade Union and Mill—June 11. Hooting in the Mill continues	Meetings at gates, picketing of workers' houses. Muslim Holiday stoppage June 3 and 4
8	June 12–July 10	25	CI, CII, CIII AI, AII, AIII B, BII, BIII	40 40 20	Erection of more looms for B group halted	Experimental shed workers accepted in Mill	All-India Communist leaders flock into Ahmedabad. Collapse of a campaign so far as Mill is concerned
9	July 11–Nov. 13	104	CI, CII, CIII AI, AII, AIII BI, BII, BIII	40 40 20	Erection of remaining 20 looms for B group restarted. Change of shift hours	Experimental shed taken over by Manufacturing Division as production unit. Fifth conference Nov. 13. Conditions for future working accepted by workers	

were very surprised and even the supervisors had misgivings about whether they were doing right. That success in solving the problems set by the experiment could be more important than production was accepted as reasonable, but such meetings had never previously been held and workers had not previously been consulted about the solution of such problems. The stopping of looms and the calling of meetings during working hours provided direct behavioural evidence that management meant what it said and did far more than verbal assurances to convince both workers and supervisors of the sincerity of top management in asking for cooperation and collaboration.

After the first informal meetings had been held they were supplemented by more formal conferences, held during working hours, at which changes in policy and in practice found necessary as a result of the experiment were discussed. The first conference, in two parts, one for each shift, was taken by the Senior Supervisor, and was attended by the Production Division Manager. At the second the member of the Development and Research Division responsible for the work-load studies was present and was asked to explain how he arrived at his results. This was the first time since his appointment some years before that he had been brought face to face with a group of workers in an atmosphere in which free discussion was possible. His spontaneous explanation and acknowledgement of his department's limitations was well received and a lively but friendly discussion followed. At this conference, the first shift stayed on and joined in the second shift's meeting because they wanted to hear the second shift's views. Subsequent conferences, which generally lasted two hours or more, were held partly in the first shift and partly in the second and were attended throughout by both shifts, on a voluntary basis so far as their own time was concerned. The third, fourth, and fifth conferences were attended by the Chairman and General Manager, and the fourth and fifth by the Weaving Master who was to take over the shed as a production unit. These demonstrations of management's concern, the Chairman's acceptance of the difficulties of finding solutions to some of the problems raised, and management's experience of the constructive contributions of the workers to those solutions slowly but steadily convinced both management and workers of each other's sincerity and willingness to collaborate. In the five conferences held during the experimental period everything bearing on the experiment was discussed and, as the conferences progressed, more and more freely discussed. By the second conference both management and workers began to feel secure enough in each other's company to disagree among themselves and by the fourth conference newcomers' questions were usually answered by workers who had been in the shed from the beginning.

The building of permissive and collaborative relationships released a flood of suggestions from the workers about beam mountings, new positioning of warp-stop motions, and other technological changes. The supervisors,

too, felt free to make experiments and take decisions which they would previously have referred to higher authority. Bad beams, which it had been intended to cut out and replace were retained, in order to provide controls for technological experiments and innovations in methods of separating warp threads abounded. Indeed, at one time, so many such experiments were taking place on sub-groups of looms that it appeared that everything was being tried except the experiment originally intended. In spite of the obvious disadvantages of such a blurring of the intended experiment, the enthusiasm and spontaneity were felt to be so valuable that nothing was done to check them, and they were allowed to work themselves out.

The Growth of Work-Group Cohesion and of Stability in Management-Worker Relationships

The formal conferences provided evidence of the gradual growth of work-group cohesion as management-worker relationships became more stable. At the first conference on January 21st during a discussion about methods of payment and group membership, workers expressed attitudes and feelings which were perhaps more consistent with individual working such as they were used to, than with group working. "I am all for groups but not if I can get 2 pies more by working on my own",[5] drew a big laugh but appeared to sum up the general feeling. At the third conference on March 10th the workers of the second shift were emphatic that they wanted pairs of front and back workers to be paid bonus on the performance of their own looms only and not on the performance of the whole group. They were surprised and derisive when the workers of the first shift said that they would prefer that all members of the group should be paid on the performance of the total group irrespective of differences in the performance of different pairs of front and back workers. The second-shift workers said that the first-shift workers would regret such a decision. The arguments and differences between the two shifts were so loud and lively that the author's interpreter could not possibly keep up with what was being said. At times the meeting resembled a good-natured, but rough, free for all. That there were differences of opinion was perhaps less important than that by this time workers felt able to disagree so heartily and so publicly. Management agreed to pay each shift as it wanted to be paid. In the fourth phase the workers of the second shift unanimously asked that their method of payment be changed to that of the first shift—all members of the group to be paid on the performance of the group as a whole.

At the second conference on February 10th the quantity and quality bonuses were discussed and workers expressed the view that the standards for quality bonus were much too tight. After the conference, the senior supervisor, supervisors, and group leaders jointly inspected several hundred

5. 12 Pies=1 Anna; 16 Annas=1 Rupee (1*s.* 6*d.* or 21 cents approx.).

yards of cloth. There was complete agreement about the results of the inspection, that is, about the number of damages which would count, but only the actual payment of bonus in the fourth phase finally dispelled the group leaders' and workers' amused disbelief in management's intention to pay it. More important perhaps, in spite of the disbelief in management's intention to pay bonus for such quality, the group leaders were able to deal with the doubts and suspicions of their own workers before the actual payment was made.

At the first conference there were many complaints of tiredness caused by so much extra walking, by the second conference there were almost reluctant admissions by some that they were getting used to it, but by the third they showed a firm preference for the new methods of work. At all conferences the workers said that they worked much harder in the experimental shed than in the other loom sheds. "I work three times as hard—and only get paid twice as much" was always good for a big laugh. It was as though they acknowledged that the amount of work done in the other loom sheds was too little, and that now a fair balance had been struck. They said that they had found the change from traditional methods of work, to which most of them had been accustomed for many years, very difficult. But by the fourth conference, called primarily to discuss the difficulties caused by agitation against rationalization, most of them were surprised at the distaste they felt at the thought of going back to the loom sheds in which traditional methods were used.

In the fifth phase, two other incidents, unimportant in themselves, provided further evidence not only of the growth of work-group cohesion but also of the lingering mutual doubts and suspicions which existed between management and workers, and of the learning of new attitudes which continued throughout the experimental period.

With the completion of both C and A groups of forty looms, an experiment was tried of staggering the midshift break so that some looms at least could be kept running throughout the break. This proposal was discussed by the senior supervisor with the shed supervisors, the shed supervisors with the group leaders, and the group leaders with the workers, and accepted by all. Group leaders and workers were told that any increase in production which resulted would increase the efficiency bonus. When staggering had been in operation for two days, the General Manager visited the shed at the time the break was due, to observe its effect for himself. He was surprised to see all the workers stop work at the beginning of the break. When an inquiry was made it was found that the workers had feared that the arrangement by which, according to their view, they would receive extra pay for no extra work, could not possibly have been approved by top management. In their wish to protect their own shed supervisors they had, without any overt observable communication, spontaneously reverted to their earlier practice on seeing the General Manager. They were surprised and reassured

to discover that the arrangement had the full approval of top management.

The second incident is concerned with the issue of permanent passes to those workers who had previously been *badli* workers in the other sheds and who, by new management policy, were entitled to permanent passes in the experimental shed. Since any worker in the experimental shed could, if he wished, return to his former job and status, a permanent pass for the experimental shed issued to a *badli* worker had to be distinguished in a way which would show that his former status was *badli* and that his permanent pass only applied to the experimental shed. The new permanent passes were distinguished by the overprint of a letter "R", and the passes were known as "R" passes. On inquiry it was found that the "R" stood for the name of the author. While it is possible to suggest that this distinction was intended as a compliment to the author, it may also be suggested that it represented a lingering disbelief among middle management, who were responsible for issuing passes, in the sincerity of top management in issuing permanent passes. The unusual issue of permanent passes to more workers than there were jobs was identified, not as a policy of top management, but as a policy of the author, who, by virtue of his consultant role, had no authority to issue them.

These events and incidents, together with others of a similar kind, may be described in one sense as a series of mutual test-outs, in which both management and workers tested each other's sincerity and integrity. Verbal assurances, in the early phases at least, carried little conviction; it was only when behaviour was experienced continuously over a long period as being consistent with expressed intention that workers' suspicions of management's motives were dissipated, and management's fear about workers' capacity to cooperate and collaborate was allayed.

The Active Campaign against Rationalization

Resistance to "rationalization" in India is long-standing. In the fourth phase of the experimental period it flared up and crystallized into a national campaign against the introduction of automatic looms into any mill in India. The Calico Mills were known to have been waiting for a long time for the endorsement of a licence, which had already been granted to them, to import automatic looms. In Ahmedabad the agitation took the form of meetings of protest against the Calico Mills' application for this endorsement. The meetings, sometimes attended by a few hundreds, sometimes by many thousands, were frequently held outside the mill gates, and processions of workers, carrying banners and shouting slogans, were an almost daily occurrence. Although the experimental shed was not using automatic looms, the workers in it were identified, by those protesting against automatic looms, as supporters of "rationalization" and therefore of automatic looms. They were subject to threats, whistles, catcalls, and boos whenever they

walked through the mill, and the mill gates were picketed by workers from other mills in an attempt to stop them entering. In May, during the seventh phase, the families of workers of the experimental shed were threatened that unless they stopped their husbands and sons from working in the experimental shed, both they and members of their families would be beaten up. One worker was stoned as he left the mill, but actual incidents of violence were few and nobody was injured. More workers than usual exercised their right to return to their previous departments during this phase, but at no time did it appear likely that the experimental shed would be unable to continue. Indeed, one of the effects of the overt expressions of hostility was, as might have been expected, to increase the sense of group solidarity and belongingness of those who had become accustomed to working in the shed. At the fourth conference held on May 14th, the workers' difficulties were discussed, but as soon as management, after some discussion, had accepted responsibility for injuries which might be received either by workers or their families as a result of the hostility, the worry and anxiety about the agitation decreased to such an extent that the conference settled down, without any further reference to the agitation, to a serious discussion of the social and technical problems of the shed itself. It was impossible to avoid the conclusion that, in the workers' eyes, the threats of injury were less important than a testing of management's intentions.

Because of the resistance to rationalization and failure to implement the four-loom system, it had been thought that it might be difficult to obtain applicants for work in the new shed, even before the flare-up, in spite of increased rates and permanent passes. Over one hundred applications were, however, received for the first twenty posts, the majority of them from existing permanent passholders. It was felt that whatever the response for the first two shifts it was unlikely that there would be many for the third shift. The third shift is always unpopular, first, because it is a permanent third shift and does not rotate with the others, and second because the sleeping conditions in Ahmedabad during the day-time are very bad. The city is heavily overcrowded and it is very common for several families to share one room. Nightly in the hot weather the traffic islands and the pavements of the city are crowded with sleepers; in the day-time even such comparative coolness is unavailable. In consequence it is the common belief that only those who cannot find work anywhere else will go on the third shift. It was with some surprise, therefore, that when the first eleven vacancies on the third shift were announced, it was found that there were over one hundred and fifty applicants, and that nearly all of them were from among the permanent weavers who had established rights in their own sheds on the first and second shifts. At the height of the disturbance, there were fewer applicants, but there were always enough for the posts available. The numbers volunteering for the experimental shed and returning to their previous departments during the experimental period are given in *Table* 13 on page 236.

TABLE 13 *NUMBERS TRANSFERRED TO EXPERIMENTAL SHED AND RETURNED TO PREVIOUS DEPARTMENT*

Phase	*Period*	*No. of Days Worked*	*Transferred to Experimental Shed*	*Returned to Previous Department*	*Rate of Returning as Number Returned per 100 Days*
1	Jan. 15–Jan. 29	14	20	2	14
2	Jan. 30–Feb. 20	19	21	1	5
3	Feb. 21–Mar. 24	27	5	2	4
4	Mar. 25–Apr. 13	17	7	1	6
5	Apr. 14–May 3	17	25	2	12
6	May 4–May 14	10	30	15	150
7	May 15–June 11	24	13	8	33
8	June 12–July 10	25	18	14	56
9	July 11–Nov. 13	104	10	14	13

June 3rd and June 4th were Muslim holidays. The whole mill was closed on June 3rd, but was open for Hindu workers on June 4th. In the past such religious holidays have frequently provided the occasion for demonstrations. In the times of Hindu-Muslim disturbances, Muslims would try to stop Hindus from working on the second day of a Muslim holiday. On June 4th very few Hindu workers presented themselves for work in the weaving sheds. In the experimental shed, however, not only the Hindus but, far more surprisingly, all the Muslims of the first shift and more than half of those of the second shift presented themselves. That they should come to work at all on a religious holiday was most unusual; that they should come on a day on which their co-religionists were seeking to prevent even Hindus from working was quite exceptional.

On June 11th an agreement was signed between the recognized Trade Union and the mill to permit the continuation of the experiment. The agreement permitted, with workers' agreement, the spread of the experimental results to other parts of the mill provided that no worker was unemployed, and that reduction be accomplished only by normal retirement and wastage.

By the middle of June, leaders of the Communist party from all over India had assembled in Ahmedabad and had taken charge of the agitation against rationalization. But from June 12th to the end of the campaign early in July, conditions in the mill returned steadily to normal.

Conditions for Future Entrants

A suspicion frequently expressed by those protesting against rationalization, and therefore against the experimental shed, was that as soon as the experiment had succeeded management would start rate cutting.

At the conference on November 14th management announced its policy for spreading the results of the experiment. In this announcement the hours of work of the first and second shifts were increased to 7½ and the hours of the third shift were reduced to 6. At the same time the basic wages for some of the grades were adjusted; the adjustments are given in *Table* 14.

TABLE 14 *GRADES AND WAGES FOR PRODUCTION GROUPS*

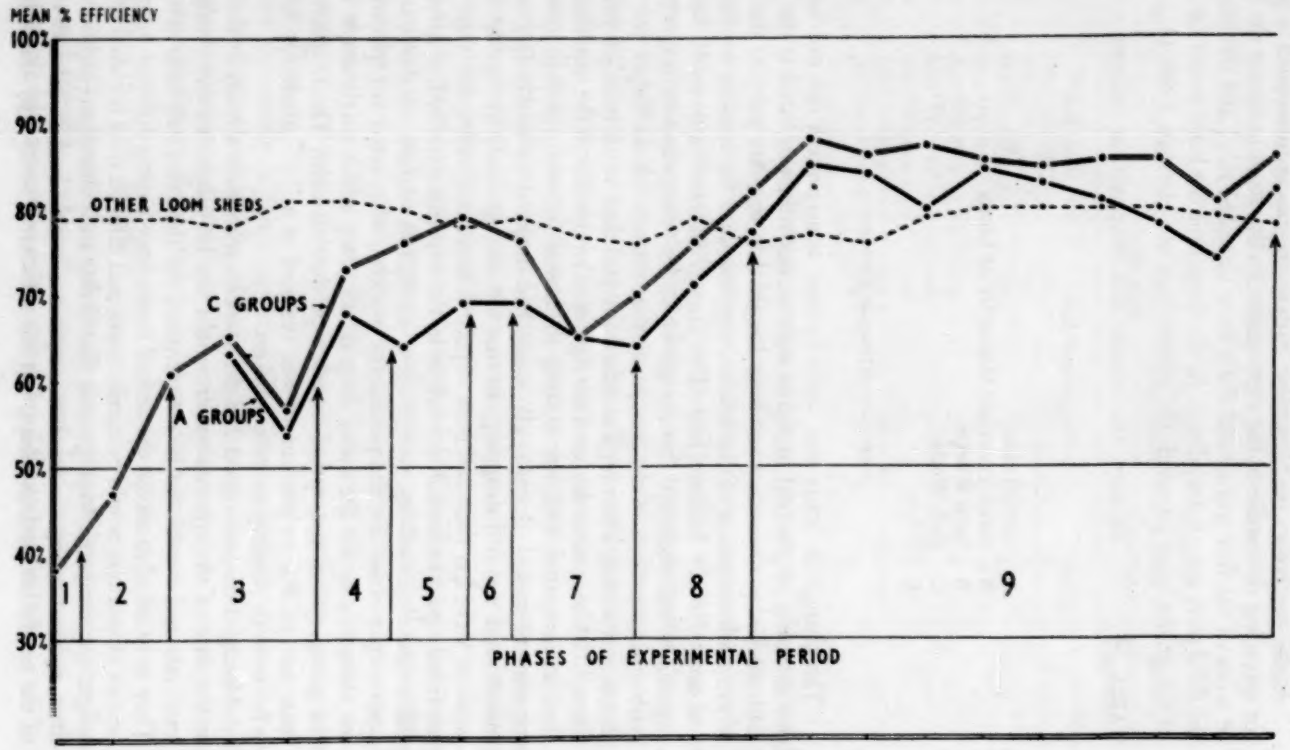
Grade	*Occupational Role*	*Basic Rate**
A	Group Leader	Rs. 150
B+	Smash Tenter and Deputy Group Leader	,, 125
B	Front Worker	,, 115
C	Back Worker	,, 90
E	Helper	,, 45

* Exclusive of Dearness Allowance.

The change in hours was made because management did not believe that it would be practical to recruit only through the third shift if the third shift worked permanently one hour longer than in other parts of the mill, when, with extension of the system, opportunities for transfer to the first and second shifts became few. The change in rates was made because experience had suggested that the group leader's rate was low as compared with other members of the group, but that the rate for the helper was such that it was setting a too high standard for unskilled work in other parts of the mill. Management disclosed the figures of labour cost in the experimental shed as compared with the existing sheds and pointed out that since the experiment started, dearness allowance had dropped by nearly Rs. 20 per month, and was still dropping, so that the savings made by having fewer workers were less than had been expected. In consequence, the wage rates previously paid to unskilled workers in the experimental shed, if spread to other unskilled workers, would allow insufficient margin on direct labour costs to pay either for the permanent workers, who acted as replacements for absentees, or for the initial drop in efficiency which might occur when the group system was spread to other production units. The D grade at a basic rate of Rs. 55 per month was retained as a "+" grade for helpers who were in training as back workers.

Management announced that the workers who were already in the shed at the date of the announcement would not be subject to any change of basic rate and would also be compensated for the extra half-hour worked. They were asked to accept the revised hours since having different hours for one set of workers would be cumbersome and difficult now the shed was no longer experimental. Management feared that such alterations in hours and rates, by confirming the workers' suspicions, would lead to a deterioration of the newly built relationships, but felt sufficiently secure, by this time, to

FIGURE 5 *EFFICIENCY: C AND A GROUPS COMPARED WITH OTHER LOOM SHEDS*



state their case. The workers gave serious and realistic attention to management's problems and, without exception, accepted the changes.

Efficiency

The results of the mean percentage efficiencies of the experimental groups for each phase of the experimental period from January 15th to November 13th are given in *Table* 15 below. The mean percentage efficiencies of the C groups and the A groups in fortnightly periods are shown diagrammatically in *Figure* 5 on page 238. The equivalent efficiencies of similar looms working at higher speeds on the same sort in other sheds during the same period are also shown.

It will be seen that the change in work organization at the end of the first phase is related to an immediate rise in efficiency and that thereafter there was a continuous and steady improvement through the first five phases of the experimental period. This improvement was halted during the difficult days of phases 6 and 7, and there was a drop in efficiency. It was resumed in phase 8, which was improved still further and maintained in the 9th phase.

TABLE 15 *MEAN PERCENTAGE EFFICIENCIES OF EXPERIMENTAL GROUPS*

Phase	*Period*	*No. of Working Days*	*Percentage Efficiency of Experimental Group*					
			CI	CII	CIII	AI	AII	AIII
1	Jan. 15–Jan. 29	14	37	36				
2	Jan. 30–Feb. 20	19	58	58				
3	Feb. 21–Mar. 24	27	62	63		60	62	
4	Mar. 25–Apr. 13	17	74	74		64	67	
5	Apr. 14–May 3	17	79	79		70	68	
6	May 4–May 14	10	75	76	62	68	71	52
7	May 15–June 11	24	68	69	62	64	66	55
8	June 12–July 10	25	80	80	76	74	75	66
9	July 11–Nov. 13	104	86	86	84	80	82	75

Damage

The mean number of damages per 1,000 yards in the nine phases for the experimental groups are given in *Table* 16 on page 241 and are shown diagrammatically for the C groups and the A groups in *Figure* 6 on page 240. It will be seen that the number of damages per 1,000 yards varies inversely with efficiencies and that the pattern of steady improvement of the first five phases, the setback in phases 6 and 7, and the subsequent improvement in phases 8 and 9 was repeated. It is almost impossible adequately to compare the damage from the experimental shed with that from the other sheds. Comparative test inspections have been made from time to time but

FIGURE 6 *DAMAGE: C AND A GROUPS COMPARED WITH OTHER LOOM SHEDS*

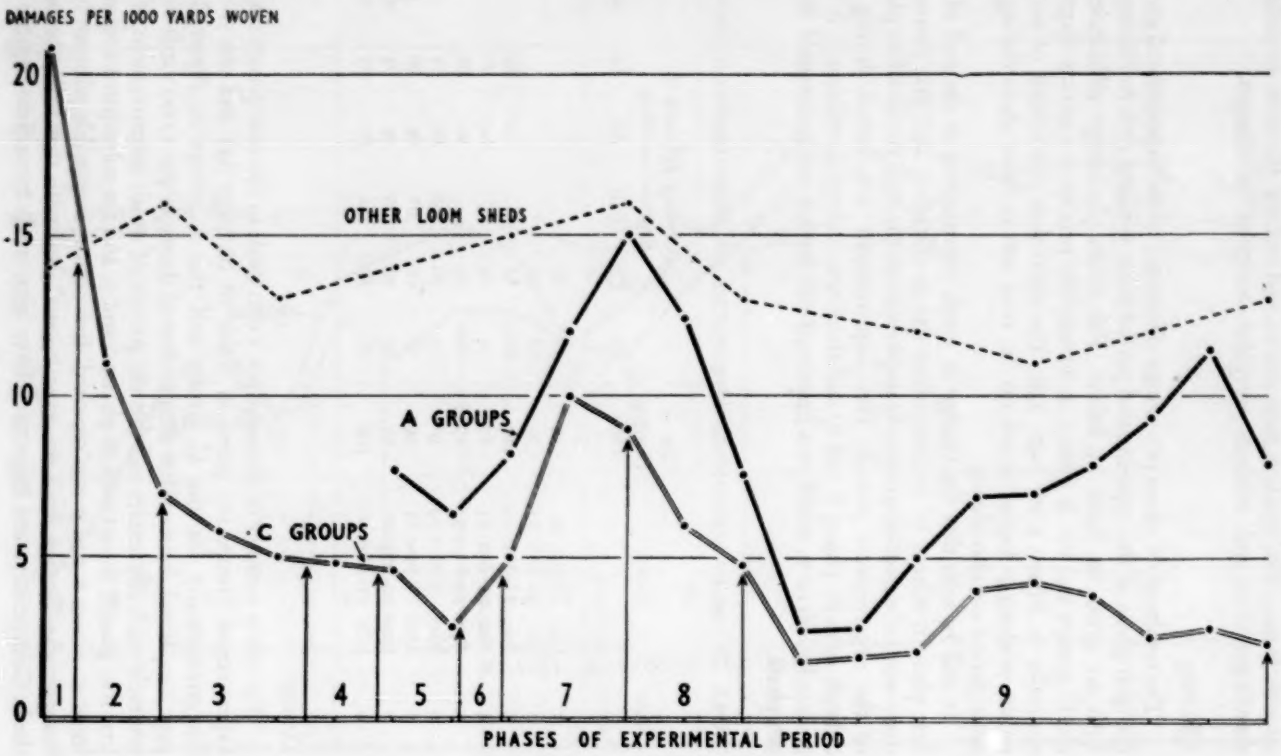


TABLE 16 *MEAN NUMBER OF DAMAGES PER 1,000 YARDS OF CLOTH WOVEN*

Phase	*Period*	*No. of Working Days*	*Number of Damages for Experimental Group*					
			CI	CII	CIII	AI	AII	AIII
1	Jan. 15–Jan. 29	14	21·1	20·4				
2	Jan. 30–Feb. 20	19	9·1	9·3				
3	Feb. 21–Mar. 24	27	5·7	5·2				
4	Mar. 25–Apr. 13	17	4·9	4·3		7·9	7·6	
5	Apr. 14–May 3	17	2·7	3·1		6·1	7·0	
6	May 4–May 14	10	4·0	5·7	7·9	8·1	7·5	15·9
7	May 15–June 11	24	7·8	10·5	15·9	15·0	15·9	28·6
8	June 12–July 10	25	5·4	5·3	9·3	11·4	8·4	15·0
9	July 11–Nov. 13	104	2·8	2·9	3·7	6·6	6·8	7·9

such tests are so subject to any prejudices of the inspectors that little reliance can be placed on the results. All that can be said with any certainty is that there was general agreement among all concerned that the cloth woven in the experimental shed was of better quality than that woven in other loom sheds, but not necessarily better than similar cloth woven on looms fitted with warp-stop motions. As early as April an important export order for high-quality cloth was sent into the mill by the Sales Department with the request that it be woven in the experimental shed. In *Figure* 6 the figures of damage for other loom sheds are taken from the departmental records as a result of normal inspection standards, standards which were believed to be easier than those of the experimental shed.

Loom Stoppages

The mean number of loom stoppages per loom per hour sampled at intervals during the experimental period are shown in *Table* 17. The loom

TABLE 17 *SAMPLED MEAN LOOM STOPPAGES PER LOOM PER HOUR*

Phase	*C Groups*	*A Groups*
1	9·9	
2		
3	4·4	
4		2·8
5	2·8	3·1
6	2·9	3·6
7	3·7	3·9
8	3·3	3·9
9	2·9	3·5

stoppage rates are given where the sample was sufficiently long to give reliable results for the loom group for the period.

It will be seen by comparing *Tables* 15, 16, and 17, that there is, generally speaking, a direct correspondence between loom stoppages and damage and an inverse correspondence between loom stoppages and efficiencies. It would be unwise, however, to press this correspondence too far since it can also be shown that increased attention to back work reduces loom stoppages. High stoppages related to lower efficiencies may not necessarily therefore be due to differences in the condition of beams, but may be due to differences in the quality of back work. Other factors are also known to affect stoppages —among them, differences in humidity caused by the positions of doors and windows and in the quality of loom tuning are the most important. The assessment of reasons for the differences between the C groups and the A groups in loom stoppages, and in performance, remains a problem, the solution to which will probably not be found until there are more groups of looms working by the same methods so that more comparative results are available.

Wage Comparison

The mean percentage bonuses earned by all workers of the C and A groups for the 9th phase of the experimental period were:

Efficiency	= 18	per cent
Quality	= 10	„ „
Total	28	per cent

The earnings from basic wages and bonus, that is, total earnings excluding dearness allowance, earned in the experimental shed in the ninth phase on the basis of wages for future entrants as compared with earnings of equivalent occupations in other loom sheds on both the two-loom and four-loom system are shown in *Table* 18 on page 243.

Production/Labour Cost Comparison

When the original cost calculations were made the dearness allowance paid to each worker, over and above his basic pay, was standing at Rs. 80 per month. During the experimental period it dropped steadily each month until by November 1954 it had reached Rs. 62 per month. In *Table* 19 on page 243 the labour costs and production indices of the experimental shed as compared with other loom sheds are given. In this table dearness allowance has been taken at Rs. 50 per month, as a precaution against future falls. Allowance has also been made in the experimental shed costs for extra third shift costs and for the extra cost of preparation by reason of the installation of warp-stop motions. The resulting figures are given as indices with existing loom shed labour costs = 100. The production index is found by multiplying

TABLE 18 *COMPARISON OF EARNINGS OF EXPERIMENTAL SHED AND OTHER LOOM SHEDS, EXCLUDING DEARNESS ALLOWANCE*

Grade	*Basic Wage* Rs.	*Average Bonus* Rs.	*Total*	*Equivalent Occupational Role*	*Average Earnings* *Two-loom*	*Four-loom*
A	150	42	192	Line Lobber	139	139
B+	125	35	160			
B	115	32	147	Weaver	66	100
C	90	25	115			
E	45	13	58	Beam Carrier	37	37
				Oiler	28	28

TABLE 19 *COMPARISON OF LABOUR COST AND PRODUCTION INDICES FOR EXISTING LOOM SHEDS AND C AND A EXPERIMENTAL GROUPS*

	Existing Loom Sheds *Two-loom System*	*Experimental Groups* CI, CII, CIII, AI, AII, AIII
Labour Cost Indices	100	117
Loom Speed Indices	100	89
Hours Worked	16	21
Mean Equivalent Efficiencies	79	82
Production Indices	100	121

loom speed indices by efficiencies by hours worked and reducing the existing loom shed production to 100. The figures for the experimental shed are taken from the average performances of all C and A groups for phase 9 of the experimental period.

Conclusions

The findings of this experiment are those of operational research. The presenting problem was to improve the quality of cloth woven on non-automatic looms. Because the experiment was designed to find a solution to an urgent practical problem it was not possible to do other than consider as many of the factors affecting quality as were known and to deal with them all. Even had the time been available, it is doubtful whether the inter-dependence of the variables would have allowed any of them to have been held constant for sufficiently long to give reliable results of tests of any of the others. Nor, in the circumstances of the experiment, was it possible to relate the findings to the ecological background of Indian economic, industrial, or cultural conditions. In this sense the findings of the experiment are inconclusive.

Previous attempts at reorganization had been unsuccessful and it was expected that there would be resistance to change among both workers and management. In the event, by the accident of the outbreak of the national campaign against rationalization, the resistance was higher than had been expected. Management's anxiety and resistance were based on the experience of the difficulty of reversing change, should experiment fail. Inasmuch as both managers and workers have accepted the flexible work system of the experimental shed as a satisfactory production method the experiment can be said to have succeeded.

It is certain that the first attraction to the workers to take part in the experiment was the establishment of higher minimum wages and higher bonus payments. That the wages by themselves were insufficient to hold those who were attracted to the shed was shown by the number who returned in May and June when trouble broke out. The growing sense of group membership and the continuation of the majority in spite of so much active opposition both suggest that the working principles upon which the experiment was based have some reality.

The immediate practical result of the experiment has been to demonstrate that, given permissive and collaborative relationships, fewer workers, paid higher wages, can produce better cloth at no greater cost than that of the older system. More important, a form of organization has been accepted by both management and workers which is flexible enough to take account of the varying work-loads with change of count, sort, colour, and conditions. The most difficult sort was chosen for the experiment. With better beams, or with simpler sorts giving fewer loom stoppages or fewer shuttlings, greater productivity could immediately be obtained by increasing loom speeds or, alternatively, costs can be reduced by reducing the number of workers in the group. Generally speaking, India is industrially depressed; the norms of productivity, wages, and consumer demand all tend to be low. Climate, health and nutrition, living conditions, and social organization have all contributed to expectations of poor wages in return for poor output. In consequence both employers and employees have, on the whole, been prepared to accept the implicit proposition that whatever the improvement in technology, Indian standards of wages and output would always be lower than those of the West.

There is evidence that the introduction of new machinery and of new techniques of production into Indian factories and mills has not often resulted in the same quantity or quality of output as has been achieved on the same machines or with the same techniques in America or in Europe. In the Jubilee Mill the building of a new loom shed and the installation of a new kind of machinery—automatic looms—had given the Calico Mills' management the opportunity to establish new norms. By offering wages greatly in excess of those earned in the ordinary loom sheds they had set new standards for themselves as well as for their employees. In the experimental

loom shed the looms were the same as those used in the ordinary loom sheds, in which expectations of both wages and effort were comparable with general Indian standards. The payment of wages comparable with those of the automatic loom shed demanded new standards of productivity, both of output per man-hour and of quality. In effect it can be said that new norms have now been experimentally established for non-automatic loom weaving. To make this possible a new socio-technical system had to be brought into existence, whose overall pattern was different from the conventional system with which the traditional norms were associated.

Since the acceptance of the experimental shed as a production unit, warp-stop motions have been installed on other looms without protest from the workers and without loss of efficiency. Further, on days when weavers are absent, neighbours now consent to work the four-loom system, again without loss of efficiency or deterioration in the quality of the cloth woven. There is no direct and concrete evidence that this acceptance of warp-stop motions and of the four-loom system is in any way related to the comparative success of the experimental loom shed, but there seems little doubt that a new attitude towards the task of weaving is coming into existence and that this new attitude does stem, at least in part, from the experimental shed. At the time of writing other groups weaving simpler sorts are being started on the third shift with applicants from the first and second shifts. These groups are being worked without any repositioning of looms or reduction in speed. As the withdrawal of weavers to the third shift makes more looms available in the first and second shifts, they will be repositioned and will be worked by groups on all three shifts. There are as yet too few results from these new groups to give reliable figures over a sufficiently long time, but the last available results show that on a simpler sort than that being woven in the experimental shed a group of ten workers could, with difficulty, perform all the tasks of running a group of forty-eight looms. Over a period of six weeks, thirty-six working days, the labour cost index was 94 and the productivity index was 152 compared with a labour cost index of 117 and a productivity index of 121 for the experimental shed. There seems little doubt that both these figures can be improved once looms are repositioned and speeds can be adjusted. On a less simple sort than that of the experimental shed, but more difficult than that of the group given immediately above, groups of eleven and twelve workers have performed all tasks of running forty-eight looms. The labour cost index has been 108 and the productivity index 150 for sixty working days.

SUMMARY

1. The presenting problem was to improve the quality of cloth woven on non-automatic Lancashire looms. The workers had consistently resisted the installation of warp-stop motions because of the extra work involved.

They were paid a bonus for quantity but fined for bad quality. By law the total fines which could be imposed were less than the bonus which could be earned by weaving damaged cloth. Current labour legislation made dismissal for bad work a difficult and complicated process.

2. On any one day forty main varieties with over three hundred sub-varieties were being woven. Varieties were put on looms without particular reference to the variety which had previously been woven on them.
3. Studies of the existing socio-technical system of non-automatic loom weaving showed that:
   a. Weavers, who were responsible for two looms, were, in their formal role-relationships independent isolates, working on their own and making their own individual relationships with those in authority over them. Informally they made supportive and mutually helpful relationships with each other, taking over each other's looms so that they could spend long periods outside the weaving sheds.
   b. Weavers, who were responsible for the quality and quantity of cloth woven, were subject to the authorities of three departments, their own, a preparatory department, and the Sales Department. To perform their work they were frequently required to visit other parts of the mill to obtain weft yarn and to deliver woven cloth.
   c. In spite of multiple authorities and a wide range of movement weavers performed an integrated "whole" task—the conversion of yarn to cloth.
   d. Two supervisors of equal status were in charge of each shift of each loom shed. There was confusion about their responsibilities and authority. In addition, neither of them had any authority over some parts of the weaving process.
4. In the Indian textile industry there are three major barriers to change;
   a. No reduction in the number employed in any company is permitted without agreement with the recognized trade union;
   b. No change in working practices is permitted without agreement with the recognized trade union; and
   c. No expansion of loom or spindle capacity is permitted in "Surplus" zones, in one of which the Calico Mills is situated.

   An enabling agreement between the millowners and the trade union signed some months previously allowed a weaver to work up to four looms provided no one was unemployed and the workers agreed.
5. An experimental shed was set up which was staffed by applicants from the existing loom sheds. In the experimental shed:
   a. All looms were fitted with warp-stop motions;
   b. The tasks of weaving were differentiated as to task area, tempo, skill required, and condition;

c. The tasks of loom-running were further differentiated into front work —shuttling and warp mending from the front of the loom—and back work—fault prevention and warp mending from the back of the loom.
d. Small internally structured work-groups performed all the tasks of weaving and maintenance on groups of forty looms, all of which wove the same kind of cloth continuously; and
e. The members of the work-groups all performed interrelated and interdependent tasks and formed mutually dependent and supportive relationships.

6. Minimum basic rates were fixed which were higher than had previously been paid. Four natural grades within a work-group were found; group leader, front loom worker, back loom worker, and helper. Additional "+" grades were given to skilled loom workers who performed the task of smash tenting and acted as deputy group leaders and to helpers who were in training as back loom workers. Bonus was paid for both quantity and quality; fining for bad quality was stopped. The bonus was paid for group performance at the workers' own request.
7. All tasks related to weaving were made the responsibility of the Senior Supervisor in charge of the loom shed and, in addition, inspection was made a function of the loom shed. Standards of inspection were agreed after a joint inspection of some hundreds of yards of cloth by the Senior Supervisor, shift supervisors, inspectors, and group leaders. Self-inspection and self-criticism were accepted by management as imposing higher standards of inspection and better quality control than when inspection was a function of the Sales Department.
8. The experimental period lasted ten months. The first weeks of the experimental period were confused by the quality of the beams, difficulties with humidification, and the inexperience of both workers and supervisors with the new methods of working. Improvements were made in the quality of the beams, and loom stoppage rates were partially controlled by variations in the speed of loom running. Both management and workers spent this time "testing out" each other's sincerity and willingness to cooperate. Gradually through the first months of the experimental period permissive and collaborative relationships based on mutual trust were built up and the workers learned to prefer group working to their former methods.
9. The building of permissive and collaborative relationships between management and workers and the stabilizing of intra-group relationships was assisted by the institution of informal group meetings and of more formal conferences. The conferences were taken by the Supervisor in charge of the shed but were attended finally by the Chairman of the Company, the General Manager, the Production Division Manager, and the Weaving Master as well as by the Supervisors, Group Leaders, and all

workers in the shed—that is, the whole executive chain responsible for production was present. At first separate conferences were held for the different shifts, but at the workers' request all shifts attended the same conferences, which were held partly in the first shift and partly in the second. When a third shift was started, the workers on this shift willingly came in, in their own time, to attend.

10. After the experimental shed had been running for approximately four months, a national campaign against "rationalization", which had been simmering for some time, flared up all over India. In Ahmedabad meetings were held and processions shouting slogans were taken out to protest against an application for automatic looms by the Calico Mills. Although the experimental shed was not using automatic looms its members were identified as supporters of rationalization; the mill gates were picketed in an attempt to stop them working; their families were threatened; they were hooted at as they walked through the mill and one worker was stoned as he left the mill. More members of the experimental shed than formerly exercised their right to return to their former jobs and status, but there were always more applicants for work in the shed than there were vacancies. On the Muslim holiday of June 4th when few Hindu weavers appeared for work in the ordinary loom sheds, all the Hindus and all the Muslims of the first shift and all the Hindus and more than half the Muslims of the second shift turned up for work in the experimental shed.
11. After a very low start the efficiency of the shed climbed steadily with a setback during the height of the campaign against rationalization until during the ninth and final phase of the experimental period it was somewhat higher than equivalent efficiencies in other loom sheds. The quality of the cloth woven in the experimental shed after being worse than that woven in other sheds for the first phase steadily improved, again with a setback during the anti-rationalization campaign, and finally settled down at a better standard than was achieved in other sheds. There were however differences in peformance both as to efficiency and damage between the groups within the experimental shed. At the end of the experimental period these differences had not been adequately explained.
12. The workers earned an average bonus of 28 per cent during the ninth phase of the experimental period; the mean earnings (less dearness allowance) of the group were 90 per cent higher than the equivalent mean earnings in other loom sheds on the two-loom system. The cost of the experimental shed was 17 per cent higher than the cost of an equivalent number of looms in other sheds and the production 21 per cent higher. These results were achieved on the most difficult sort regularly woven in the mills.
13. The findings of the experiment are those of operational research. The experiment was conducted within the terms of reference of a consultant-

client relationship and the solution of an urgent practical problem was of greater importance to both client and consultant than the pursuit of research objectives. Even had time been available it is doubtful whether the interdependence of the variables would have allowed any of them to have been held constant for sufficiently long to give reliable results of tests of any of the others. With sufficient time and resources, however, it is likely that the results could have been related more directly to the current economic, industrial, cultural, and political conditions of India. In particular it might have been possible to explain and define more accurately the causes and effects of the national "anti-rationalization" campaign and its collapse in the mill following the partial stoppage on the Muslim holiday of June 4th, and its collapse in the city following the influx of Communist leaders early in July.

14. The immediate practical result of the experiment has been to demonstrate that in the Calico Mills the breakdown of the "whole" task of weaving into component operations each performed by a different worker and the reintegration of the workers into an internally structured work-group which performs the "whole" task on a group of looms can be accomplished in one process, provided that permissive and collaborative relationships can be built up between all those concerned. In consequence fewer workers, paid higher wages, have been able to produce better cloth at no greater cost than by the older system.
15. Since the acceptance of the experimental shed as a production unit, warp-stop motions have been fitted to other looms without protest from the workers and without loss of efficiency. At the time of writing, other groups weaving different sorts are being started on the third shift with applicants from the first and second shifts. These groups are being worked without any repositioning of looms or reduction in speed. As the withdrawal of weavers to the third shift makes more looms available in the first and second shifts, they will be repositioned and will be worked by groups on all three shifts.

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BIOGRAPHICAL NOTE

A note on the author of this article is to be found in *Human Relations*, Vol. III, No. 4.

DISCUSSION, DECISION, COMMITMENT, AND CONSENSUS IN "GROUP DECISION"[1]

EDITH BECKER BENNETT

The major historical antecedents of the present experiment consist of three studies reported by Kurt Lewin (4) and performed under his direction during the 1940's. All three experiments compared the effectiveness of a procedure Lewin named "Group Decision" with that of some other method of changing food habits.

The term was used, in this context, to refer to a group discussion about the desirability of a particular action to be taken by the members of the group as individuals. The discussion was always concluded by the leader with a request for decisions regarding individual intentions of taking such action in the future. The present experiment, also, is focused upon situations in which individuals are induced to reach a personal decision in a group setting.

The use of the term "Group Decision" for such a procedure, however, should be clearly differentiated from its use in situations involving collective solutions of group problems in which action decisions have implications for the discussion participants as group members rather than as individuals.

Previous Experimental Results

The first of the studies described by Lewin was performed by Bavelas, Festinger, Woodward, and Zander (1). A method of group decision was found vastly superior to the lecture method in persuading housewives to serve intestinal meats. The second experiment, by Radke and Klisurich (8), again compared group decision to lecture, improving on the previous design by holding the factor of leader personality constant over both methods.

1. This article is based on a dissertation submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy in the University of Michigan (2).

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Group decision again was shown superior to lecture in increasing housewives' use of fresh and evaporated milk. In the third study discussed by Lewin, Radke and Klisurich (8) compared the effectiveness of group decision and individual instruction in persuading mothers to supplement infant diets with orange juice and cod-liver oil. Again, experimental results were favorable to the group decision method, though differences, this time, were not as striking as they had been in the previous studies.

Neal Miller (5) succinctly summarized both the significance and shortcomings of the Lewinian researches:

> The investigators found that a group of housewives who participated in a discussion, made a public decision by raising their hands, and were told that there would be a follow-up study to check on what they did were much more likely to serve the nonpreferred meat than another group who listened to a lecture without making a public decision and without being told to expect a follow-up study. In this pioneer stage these investigators have tended to lump together a number of factors such as hearing the views of other group members, having a chance to express one's objections, being required to make some immediate public or private decision, etc.

The present experiment addressed the problem of breaking down the operation of group decision used by Lewin and his co-workers into several separately meaningful factors, which could be individually assessed for their probable contribution to the Lewinian results.

The group decision in the three experiments described above a. consisted of group discussions, b. concluded with a request for decision, c. yielding 100% positive decision, which were d. made publicly. In addition, the group decision variations all included e. a statement of a specific time period within which the requisite action was to be taken (and after which experimental effects were measured), as well as f. the information that a follow-up would be made.

The contrasting approaches, lecture and individual instruction, were equal to these treatments *only* in so far as the same information was conveyed. On every other variable they differed.

Two of the six variables above—specific time limit and knowledge of follow-up—were eliminated from consideration in the present experiment by being controlled, and four factors were thus isolated for study in the research reported here.

These were:
1. *Group discussion* as a means of conveying information
2. *Decision* to perform a specified action
3. *Commitment*—focus upon the degree of publicness or privacy with which the decision is indicated
4. *Degree of consensus* by the group in reaching the requested decision.

In addition to separating the operation of these four factors, an important improvement over previous designs was the inclusion of an *objective* action criterion. Thus, findings in this experiment did not rely, as in previous studies, on differences in verbal reports of action.

Hypotheses

For each of the four major variables, a hypothesis was formulated that could be tested without reference to the effectiveness of the remaining factors involved in the group decision process. They are stated positively here, indicating the direction in which each variable might be expected to exert an influence on action, on the basis of the studies examined above. Experimental data were analysed (below), of course, in terms of the null statement of each hypothesis.

HYPOTHESIS 1: *Group discussion*, as an influence technique, is a more effective inducement to action than is the lecture method or no persuasion attempt at all.

HYPOTHESIS 2: The process of coming to a *decision* regarding future action raises the probability that such a decision will be executed.

HYPOTHESIS 3: Where a decision is made, a more *public commitment* to action (i.e. a more public indication of a positive decision to take action) is more effective in assuring the execution of such action than is a less public one.

HYPOTHESIS 4: A high degree of *group consensus* regarding intention to act raises the probability that individual members of the group will execute the action above the probability of action by members of a group in which there was a low degree of consensus.

EXPERIMENTAL PROCEDURES

The experimental manipulations attempted to raise the willingness of University of Michigan students in a beginning course in psychology to volunteer to serve as subjects in psychological and sociological experiments.

Three types of "influence attempt" and four "decision and commitment" variations were combined to create twelve experimental treatments, which were administered to sub-groups of the experimental population.

FIGURE 1 *TWELVE EXPERIMENTAL VARIATIONS*

	Discussion	*Lecture*	*Control*
1. No decision	D–1	L–1	C–1
2. Anonymous decision	D–2	L–2	C–2
3. Partially anonymous decision	D–3	L–3	C–3
4. Public commitment	D–4	L–4	C–4

The four variations along the vertical axis represent *two* of the experimental variables, and are relevant to the testing of two of the hypotheses. Specifically: 1. the "no decision" variation is differentiated from *all* of the other three with reference to the factor of reaching a decision; 2. decision levels 2, 3, and 4 differ among themselves with reference to the degree of anonymity with which decisions are indicated (cf. below).

The experiment involved seven stages of administrative operations:

1. *Pre-Questionnaire*

A (pre-)questionnaire regarding the students' reaction to a possible request to volunteer was administered to 27 sections of the beginning course in psychology (registration size: 15–36). Students were asked to write "a few paragraphs describing the considerations (they would make) and reasons (they would offer in deciding how to respond to a request to volunteer)". A concerted effort was made to assure the identification of all respondents by name, since assignment to sub-groups and all later record-keeping was concerned with individual subjects.

2. *Group Equating and Assignment to Treatment Variations*

Three categories of overall feeling-tone were developed for coding the questionnaire essays: 1. positive; 2. negative; 3. conditional. Coders trained by the experimenter coded all records (about 750); the experimenter recoded a 20% sample independently; agreement was 96%. The proportion of positive responses ranged from 22% to 70% in the original 27 sections.

Eighteen sections in which positive responses ranged from 38% to 63% were selected for the experiment. Each of the 18 sections was then divided into two sub-groups equated for number of men and women and for proportion of positive, negative, and conditional respondents.

Thirty-six experimental groups (N=8 to 16) were thus created of which three were assigned to each of the twelve experimental conditions. Treatment assignments were made in such a way that no more than one section taught by any one instructor was exposed to each of the "influence attempt" variations.

Instructors were urgently requested to keep out of their teaching-material any subject matter that might be interpreted as a value judgment on the experience of serving as a subject.

Each of the three leaders (cf. below) was then assigned to meet with one of the three groups in each of the Discussion and Lecture variations.

3. *Leader-training*

Three male graduate students in psychology, all having one year of teaching experience, served as discussion leaders and lecturers. The experimenter and a fourth male graduate student administered the commitment operations to all Control groups.

The teaching experience of the three leaders gave them some background in discussion leadership and lecturing. None of them, however, could be considered an "expert" in either technique. Leader-training consisted of:

a. Inspection of pre-questionnaire responses. This provided a basis for expectancies regarding the topic areas that would be raised by discussion groups.

b. Role-playing practice in discussion leadership: handling hostile subjects.

c. Two practice discussions for each leader, using some of the nine sections eliminated from the experiment (above): tape recordings of the practice sessions were employed for critical appraisal of leadership methods and for the establishment of common outlines of discussion content and techniques.

On the basis of the experience gained in the practice discussions, a common lecture was written.

The administration procedures for the Control variations were straightforward, and did not require any special preparation.

4. *Experimental Manipulations*

The attendance roll was called and checked by the two leaders who entered each section. This divided the sub-groups of the section ("The following people please come with me.") and also provided a record of the actual experimental subjects (i.e. students present).

The influence attempt variations and the decision and commitment variations were defined independently. The twelve experimental conditions were created by appending one of the four decision-commitment variations to one of the three influence variations.

Influence Attempts

Discussion. The leader introduced the topic of the necessity of volunteer subjects in social science research. A few words were said about the value of research as against folk-lore or armchair theorizing. He opened discussion by asking the students how they felt about being subjects, and tried to elicit participation from all or most group members. He tried to get at least some members to offer all the relevant objections (lack of time, fear of the unknown, social inapplicability of laboratory research, of research on college sophomores, expectation of not being told "what it's all about", fear of embarrassment, of electric shock, "what do we get out of it?"). He accepted all objections without implied disapproval, supporting the members' right to and reason for objections. When, however, no member seemed inclined to meet an objection with a positive argument, the leader opened new lines of discussion that could be expected to arouse such positive feelings. He gave information when it was specifically requested, relevant, and not supplied from within the group. His objective was the persuasion of as many members

of the group as possible that being a subject would be a worthwhile, interesting, and valuable experience.

Lecture. The lecturer introduced the topic much as he had done in the discussion groups, and went on, with several reiterations of the major points, to cover all the points raised in discussion groups (positive and negative points). A common lecture outline was used by all three lecturers.

Control. In order to bring the topic back to mind, the group was reminded of the questionnaire that they had previously filled out. The appropriate decision variation was then performed and the group dismissed.

Decision and Commitment Variations

No decision (level 1). The discussion or lecture group was simply dismissed at the end of the influence procedure. The control groups in this category were not approached at all.

Anonymous decision (level 2). The leader distributed blank papers, and asked each student to write an anonymous statement regarding his willingness to volunteeer, if asked. These papers were later identified by section and experimental variation. At the "action count" step (below), all students from these groups who "acted" (presented themselves at designated place and time) were asked to pick their own handwriting out of the appropriate collection of papers. This operation enabled the experimenter to identify individuals who: 1. said they would volunteer and did; 2. said they wouldn't but did; and by elimination to obtain a count of the number who: 3. said they would but didn't and 4. said they wouldn't and didn't. Inspection of the slips from each group also gave a count of the number of members whose decision was positive.

Partially anonymous decision (level 3). The leader asked for a show of hands by those members of the group who would be willing to volunteer, if asked. He counted the number of raised hands. One member of the class who had previously been contacted by the experimenter and recruited as a collaborator hastened to make a secret record of the names of the students whose hands were raised.

Public commitment (level 4). The leader asked for a show of hands by students who had decided to volunteer when asked. He systematically went through the group, asking for the name of each student whose hand was raised, and openly made a written record of these names.

In the nine treatments in which some decision *was* requested (i.e. Discussion, Lecture, Control: 2, 3, and 4=27 groups) no attempt to assure unanimity of the decision to act was made. All such experimental groups were allowed to vary freely in the proportion of their members who made the decision to act.

5. *Invitation to Action and Action Count*

Several days after the completion of the experimental treatments, a letter

was sent to all participating subjects (i.e. those present at experimental treatments, N=488) informing them that a "central file" of volunteers was to be established by the "Committee for recruiting experimental subjects". They were invited to appear at a specified place during a limited time period, in order to make their names, phone numbers, etc. available to experimenters.

The experimenter served as the representative of the "committee" and personally received all volunteers.

6. *Questionnaire*

A week after the close of the volunteering period, the 18 sections participating in the experiment were re-entered with a questionnaire. The questions relevant to this study read:

1. Would you (now) like to or are you willing to participate in an experiment? (Final attitude)
2. Were you in Mr. ——'s or Mr. ——'s group? (Inserted to bring experimental treatment back to mind)
3. Did you decide at the time of the meeting to volunteer? (Report of commitment)
4. How many people from your group do you estimate signed up for the central subject file? (Perception of concensus leading to action)
5. Did you go to volunteer? (Report of action)

The second question was rewritten for the specific leaders working with each section. The second and third questions were eliminated in the absolute Control groups (no influence attempt; no decision).

7. *Correction of Experimental Records*

The complete description of an experimental subject had to fulfil the following requirements: a. participation in some experimental condition; b. membership of defined population—student in course in beginning psychology; c. reception of invitation to action.

Registrar's records were therefore checked before analysis was begun, in order to eliminate from the records students who, between the first and the last stages of this experiment, had: a. left the University; b. dropped the psychology course; c. changed their address and thus had not received the invitation to action. Records on 473 subjects were then ready for analysis.

At this point a check on the success of the equating procedures (cf. above) was made. A chi-square analysis was made, comparing the twelve experimental variations for the number of subjects whose original reaction to the topic of volunteering had been positive, negative, and conditional (pre-questionnaire). The resulting χ^2 showed differences at the 97% level of confidence, i.e. no differences between the 12 variations.

ANALYSIS OF RESULTS

I. Group Discussion as a Variable

Hypothesis 1 stated that group discussion, as an influence technique, would have a significantly greater effect upon action and related variables than would lecture or no influence attempt at all.

TABLE I *NUMBER AND PROPORTION OF SUBJECTS EXPOSED TO EACH OF THE INFLUENCE ATTEMPTS WHO FULFILLED THE ACTION CRITERION (Action: 2 degrees of freedom)**

	Total N	*No. Acting*	*% Acting*
D	165	34	21
L	144	31	22
C	164	31	19

$\chi^2 = .374$ $p = 84\%$

* The probabilities reported throughout this paper are the two-tailed chance probabilities customarily used in psychological papers. However, where a hypothesis correctly predicts the *direction* of deviation from expected frequencies the probability of chance occurrence of results is smaller than that read from the table of chi square; e.g. one half as great for a two-by-two analysis (3). Such cases arise later in this paper.

TABLE II *NUMBER AND PROPORTION OF SUBJECTS EXPOSED TO EACH OF THE INFLUENCE ATTEMPTS WHO, WHEN ASKED TO REACH A DECISION, MADE A POSITIVE DECISION (Experimental Commitment: 2 degrees of freedom)*

	Total N	*No. Making Commitment*	*% Making Commitment*
D	126	95	75
L	92	70	76
C	112	80	71

$\chi^2 = .604$ $p = 73\%$

TABLE III *NUMBER AND PROPORTION OF SUBJECTS EXPOSED TO EACH OF THE INFLUENCE ATTEMPTS WHO RESPONDED "YES" TO THE REPORTED COMMITMENT QUESTION ON POST-EXPERIMENTAL QUESTIONNAIRE (Reported Commitment: 2 degrees of freedom)*

	Total N	*No. Reporting Commitment*	*% Reporting Commitment*
D	104	45	44
L	83	46	55
C	90	54	60

$\chi^2 = 5.853$ $p = 6\%$

TABLE IV *NUMBER AND PROPORTION OF SUBJECTS EXPOSED TO EACH OF THE INFLUENCE ATTEMPTS WHO MADE A POSITIVE DECISION TO ACT AND WHO "ACTED" (Follow-Through: 2 degrees of freedom)*

	Total N	*No. Carrying out Commitment*	*% Carrying out Commitment*
D	95	29	31
L	70	24	34
C	80	23	29
	$\chi^2 = \cdot 557$	$p = 76\%$	

TABLE V *NUMBER AND PROPORTION OF SUBJECTS EXPOSED TO EACH OF THE INFLUENCE ATTEMPTS WHOSE FINAL ATTITUDE WAS POSITIVE (Final Attitude: 2 degrees of freedom)*

	Total N	*No. Positive*	*% Positive*
D	134	69	51
L	120	60	50
C	126	67	53
	$\chi^2 = \cdot 248$	$p = 88\%$	

This hypothesis is tested here by comparisons of results on each of the outcome variables shown by subjects who were exposed to the three different "influence attempts" of the experiment: Discussion, Lecture, and Control.

The hypothesis, then, was not supported by the results on the outcome variables of Action, Experimental Commitment, Follow-Through, or Final Attitude.

Only the Reported Commitment data—responses to the request to remember whether or not they had decided to volunteer at the end of the experimental session—differentiated subjects in terms of the three influence techniques. A distortion phenomenon, a divergence of report from actuality has thus emerged.

The occurrence of this distortion must be related to the types of influence technique, since the number of *actual* positive decisions (*Table II*) showed no differences between them, and the number of *reported* positive decisions (*Table III*) did show such differences.

A comparison of *Tables II* and *III* reveals that the greatest divergence of Reported Commitment from Experimental Commitment occurred in the Discussion groups.

These distortions of decisions, which were actually positive and were later reported as negative, are largest among Discussion participants and smallest among Control subjects. Some tendency to present a picture of consistency between a promise and the execution of the promise (to act)

seemed to be evident among all subjects, but strongest among the Discussion subjects. Such an interpretation of the obtained distortions as a tendency toward consistency, or a denial of having failed to keep a promise should properly be tested for differences between influence techniques with an analysis that considers only non-actors who had made a positive decision.

Eighty-eight subjects of the following description were available for such an analysis: 1. those whose individual decision was known to have been positive; 2. those who did not act (come to volunteer); 3. those who were present for the questionnaire.

Their responses to the reported commitment question were compared with reference to the influence attempts to which they had been exposed.

TABLE VI *REPORTED COMMITMENT OF SUBJECTS EXPOSED TO EACH OF THE INFLUENCE ATTEMPTS WHOSE EXPERIMENTAL COMMITMENT (DECISION) WAS POSITIVE AND WHO DID NOT ACT*
(2 degrees of freedom)

	Commitment Report Correct	*Commitment Report not Correct*	*Total*
D	16	12	28
L	24	9	33
C	22	5	27
Total	62	26	88
	$\chi^2 = 4.036$	$p = 15\%$	

This result is interpreted as a not quite significant trend indicating the strongest tendency to distort the report of decision to conform with action on the part of Discussion subjects and the weakest tendency on the part of Control subjects.

Summary

The analyses assessing the potency of Group Discussion as a variable have shown that Group Discussion did *not* bring about more action than did Lecture and Control; it did *not* produce a higher proportion of positive decisions; it did *not* assure a greater proportion of execution of promised action; it did *not* have a significant effect on attitude about the target area discussed.

One difference only was found between Group Discussion, Lecture, and Control: subjects who participated in a Group Discussion and, as a result, committed themselves to an action, showed a somewhat greater tendency to report this commitment inaccurately when they had failed to carry out the promised action than subjects who had been exposed to the other two influence attempts.

II. Decision as a Variable

Hypothesis 2 stated that the process of coming to a decision regarding future action would raise the probability that such a decision would be executed. It may be tested in two distinct manners, according to two interpretations of the decision process.

The Lewinian experimenters, by virtue of their consistent achievement of 100% positive decisions, demonstrated the greater likelihood of action on the part of subjects who had been asked to reach a decision than on the part of those who had not been exposed to a decision request. The greater part of the analysis presented here duplicates this approach to the hypothesis.

In the present experiment, however, the occurrence of negative responses to the decision request also makes possible a comparison of action by positive and negative deciders (regardless of experimental variation).

TABLE VII *FREQUENCIES OF POSITIVE AND NEGATIVE DECISIONS AMONG ACTORS AND NON-ACTORS* (*one degree of freedom*)

	Decision or Commitment		
	Positive	*Negative*	*Total*
Actors	76	0	76
Non-actors	169	85	254
Total	245	85	330

$\chi^2 = 34{\cdot}322$ $p = {\cdot}1\%$ level

Not a single subject who had responded negatively to a request for decision took the action step. If failure to reach a positive decision can be interpreted as a decision *not* to act, *Table VII* reveals that such negative decisions were consistently "executed".

This finding, then, gives one type of support to the hypothesis. The analysis paralleling the Lewinian approach (below) arises out of the experimental variations along the Decision axis.

The four "commitment" variations of the experiment included three in which subjects were requested to reach a decision (levels 2, 3, 4) and one that was defined by the absence of such a request for decision (level 1). Below, differences between level 1 subjects ("No Decision") and level 2, 3, and 4 subjects ("Decision") are examined for the Action and Final Attitude outcome variables.

Both outcome variables demonstrate some differences in favor of the decision groups. The χ^2 yielded by the action data may be considered significant. (Since both differences lie in the predicted direction, the probability levels are actually one half as large as those reported—cf. footnote to *Table* 1.) The hypothesis concerning the factor of decision as an effective variable has, then, been substantially confirmed.

TABLE VIII *NUMBER AND PROPORTION OF "ACTORS" AMONG SUBJECTS WHO WERE AND WERE NOT ASKED TO REACH A DECISION (one degree of freedom)*

	Total N	*No. Actors*	*% Actors*
No Decision	135	20	15
Decision	338	76	22

$\chi^2 = 3.509$ $p = 7\%$

TABLE IX *NUMBER AND PROPORTION OF FINAL POSITIVE ATTITUDES AMONG SUBJECTS WHO WERE AND WERE NOT ASKED TO REACH A DECISION (one degree of freedom)*

	Total N	*No. Actors*	*% Actors*
No Decision	102	46	45
Decision	278	150	54

$\chi^2 = 2.338$ $p = 13\%$

III. Public Commitment as a Variable

Hypothesis 3 (a more public indication of decision—a public commitment—is expected to lead to more action, etc., than a less public indication of decision) is tested by comparing results yielded by the three different manners of indicating decision.

The major operationalized hypothesis about public commitment stated that the effects of the different commitment levels would stand in the relationship: level 4, 3, 2 (cf. Procedure section for operational definitions).

The two variations that consisted of more than a "pure decision" (i.e. levels 3 and 4) had been designed simply on the face validity of the proposition that giving one's name to the leader is tantamount to a more public commitment than is raising one's hand. Confirmation of the hypothesis, therefore, need not necessarily be limited to the above stated relationship. Results showing either of the "decision plus" variations to be more effective than "pure decision" could be accepted as evidence tending to confirm the hypothesis.

TABLE X *NUMBER AND PROPORTION OF SUBJECTS IN EACH COMMITMENT VARIATION WHO FULFILLED THE ACTION CRITERION (Action: 2 degrees of freedom)*

	Total N	*No. Actors*	*% Actors*
2. Anonymous Decision	112	32	29
3. Partially Anonymous Decision	113	22	19
4. Public Commitment	113	22	19

$\chi^2 = 3.542$ $p = 18\%$

Comparisons for differential effects on each of the outcome variables are presented in *Tables X–XIV.*

TABLE XI *NUMBER AND PROPORTION OF SUBJECTS IN EACH COMMITMENT VARIATION WHO MADE A POSITIVE DECISION* (*Experimental Commitment: 2 degrees of freedom*)

	Total N	*No. Making Commitment*	*% Making Commitment*
2.	112	87	78
3.	105	74	70
4.	113	84	74

$\chi^2 = 1{\cdot}217$ $p = 53\%$

TABLE XII *NUMBER AND PROPORTION OF SUBJECTS IN EACH COMMITMENT VARIATION WHO RESPONDED "YES" TO THE REPORTED COMMITMENT QUESTION ON POST-EXPERIMENTAL QUESTIONNAIRE* (*Reported Commitment: 2 degrees of freedom*)

	Total N	*No. Reporting*	*% Reporting*
2.	100	54	54
3.	88	37	42
4.	89	54	61

$\chi^2 = 6{\cdot}355$ $p = 5\%$

TABLE XIII *NUMBER AND PROPORTION OF SUBJECTS IN EACH COMMITMENT VARIATION WHO MADE A POSITIVE DECISION TO ACT AND WHO SUBSEQUENTLY "ACTED"* (*Follow-Through: 2 degrees of freedom*)

	Total N	*No. Carrying out Commitment*	*% Carrying out Commitment*
2.	87	32	37
3.	74	22	30
4.	84	22	26

$\chi^2 = 2{\cdot}340$ $p = 31\%$

TABLE XIV *NUMBER AND PROPORTION OF SUBJECTS IN EACH COMMITMENT VARIATION WHOSE FINAL ATTITUDE WAS POSITIVE* (*Final Attitude: 2 degrees of freedom*)

	Total N	*No. Positive*	*% Positive*
2.	98	57	58
3.	91	43	47
4.	89	50	56

$\chi^2 = 2{\cdot}518$ $p = 29\%$

The hypothesis, then, was not supported by the results on the outcome variables of Action, Experimental Commitment, Follow-Through, or Final Attitude.

Only one set of data, the proportion of subjects reporting that they made a positive commitment (*Table XII*), reveals significant differences between the three types of commitment-gathering situations.

Just as in the analysis of the influence attempt axis (Section I), it is found in this breakdown of the commitment variations that the *reported* commitment differs with experimental treatment although the *actual* (experimental) commitment does not.

This means, then, that the distortion phenomenon already noted is also related to type of decision or commitment variation.

TABLE XV *REPORTED COMMITMENT OF SUBJECTS IN TWO COMMITMENT VARIATIONS WHOSE EXPERIMENTAL COMMITMENT (DECISION) WAS POSITIVE AND WHO DID NOT ACT (one degree of freedom)*

	Report Correct	*Report Incorrect*	*Total*
3.	24	18	42
4.	38	8	46
Total	62	26	88
	$\chi^2 = 6{\cdot}862$	$p = 1\%$	

When the percentage of students in each sub-group who actually made a positive commitment (*Table XI*) and the percentage who reported such positive commitment (*Table XII*) are compared, a smaller divergence of report from actuality is found in level 4—the most public commitment variation, than in the other two treatments.

The tendency to present a picture of consistency between a promise and the execution of that promise may now be tested for differences between commitment treatments, with an analysis of the 88 subjects previously considered (individuals whose decision was known to be positive, who did not act, and who were present for the questionnaire.).

All these 88 come from levels 3 and 4, since the experimental procedures provided no way of identifying the *individual* non-actors who made positive and negative decisions in the anonymous decision situation (level 2).

This difference seems most parsimoniously explained as a simple confirmation of the fact that operational differences (i.e. as to apparent identifiability of individual commitments) *were* perceived by the subjects. Since subjects making a positive decision in level 4 had given their name to the experimenter, they were less prone to try to misrepresent their decisions.

Summary

A review of the analyses presented in this section reveals that the basic action hypothesis, stating that a more publicly indicated decision will be more likely to lead to action than a less public one, has not been confirmed.

Only on one outcome variable—Reported Commitment—were differences found to exist between the different commitment levels. These differences, however, did not arise from any of the relationships between variations that were predicted from the hypothesis.

The hypothesis, therefore, cannot be considered to have been confirmed by any of the findings.

IV. Group Consensus as a Variable

Hypothesis 4 stated that a high degree of group consensus regarding intention to act would raise the probability of action by members of the group above the probability of action by members of groups in which there was a low degree of such consensus.

A. Objective Consensus. The analyses reported here consider the action data in terms of individual group sessions (3 in each experimental cell) rather than in terms of experimental variations. A new resultant concept, "high" and "low" positive decision, is introduced here, which should be carefully differentiated from the experimentally created "more public" *versus* "less public" commitment.

Nine groups (level 1) are characterized by "No Decision". Students in the other 27 groups were asked to make a decision or commitment, and the groups were allowed to vary freely as to the *proportion* of group members who made a positive decision. The resultant proportions ranged from 100% to 41%. The mean group proportion was 72·5%.

A dichotomy that ignored differentially applied operations was made, segregating groups in which the proportion of positive decisions was above, average (73% or more) from those in which it was below average (72% or less). Thirteen "high" groups and 14 "low" groups were thus isolated.[2]

Both the "high" and "low" categories are made up of subjects exposed to all three sets of treatments on both the influence attempt and commitment variation axes. For the purposes of the following analyses, experimental treatment—the manner in which given levels of consensus were stimulated—may be considered to have been held constant.[3]

The analyses below divide individual subjects into two groups: those who participated in "high" and "low" groups.

2. Since analyses comparing subjects who had participated in "high" and "low" groups were projected, a new check on their original equation had to be made at this point. That is, equating procedures had been originally applied with reference to the twelve experimental variations. A comparison of the "original attitudes", or reactions to the possibility of being asked to volunteer for experiments, as expressed in the pre-questionnaire was now made for subjects assigned to the "high", "low", and "no decision" categories. No differences were found between these original attitudes of subjects in the three categories, the resultant chi square being interpreted at the 80% level of confidence.

3. Cf. complete report of this experiment (2) for a fuller discussion of these analytic procedures.

TABLE XVI *NUMBER AND PROPORTION OF THOSE SUBJECTS IN "HIGH" AND "LOW" GROUPS WHO HAD MADE A POSITIVE DECISION AND SUBSEQUENTLY ACTED (one degree of freedom)*

	No. Committed	*No. Acting*	*% Acting*
High	131	45	34
Low	112	31	28
	$\chi^2 = 1{\cdot}233$	p = 27%	

Hypothesis 4 must be tested by a comparison of Follow-Through (action and non-action considered for the sub-set of committed subjects), in view of the finding (*Table VII*) that negative deciders do not act and the fact that there are more committed subjects in the "high" groups by definition.

The hypothesis stating that in the "high" groups a larger proportion of subjects who made a positive decision will execute the promised action than in the "low" groups cannot be supported with a very acceptable degree of confidence.

A relationship between the degree of group consensus regarding intention to act and the Final Attitude of subjects, as expressed on the post-experimental questionnaire, was also expected. Such a relationship would follow necessarily, if the decision to act reached at the end of the influence attempt was expected to have any more than momentary validity. That is, the "high" and "low" categories were based on the Experimental Commitment data, as described above. These data consisted of subjects' reactions to the request for a decision regarding their eventual willingness to volunteer. The Final Attitude data consisted of subjects' responses to an item on the questionnaire, administered about three weeks after the experimental manipulations, that asked for their reaction to the same eventuality as of that moment.

TABLE XVII *FINAL ATTITUDE ("YES" AND "NO" RESPONSES TO POST-EXPERIMENTAL QUESTIONNAIRE ITEM REGARDING WILLINGNESS TO VOLUNTEER) OF SUBJECTS FROM "HIGH" AND "LOW" GROUPS (one degree of freedom)*

	Final Attitude		
	Yes	*No*	*Total*
High	82	46	128
Low	67	86	153
Total	149	132	281
	$\chi^2 = 11{\cdot}291$	p = ·1%	

This significant relationship, then, is most parsimoniously interpreted as a quasi-reliability figure, since these two outcome criteria represent, basically, responses to almost identical questions, separated by about three weeks of time.

It is important to note, however, that these differences between "high" and "low" groups were created at the time of the influence attempt and/or decision request. Subjects from these groups did *not* differ in their reactions to a possible request for experimental volunteers at the time of the pre-questionnaire administration (cf. footnote 2).

B. Perception of Consensus. The dichotomies employed in the above analyses are based on the *objectively measured* reaction of subjects to the request for decision. A thorough elaboration of the dynamics underlying hypothesis 4 would involve the use of intervening concepts concerning the group members' perception of these reactions and their belief that action would follow the decisions or commitments.

The post-experimental questionnaire included a question that to check the validity of the assumption that seeing others make a commitment is equivalent to believing that they will act.

The question asked: "How many people from your group do you estimate signed up with the central file? (Write approximate per cent)—%." These answers were coded into five categories plus one for no answer.

A comparison between the objectively measured proportion of positive decisions and answers to this question reveals the previously assumed relationship (between witnessing a high proportion of positive decisions and believing that many group members will act) to be significant at the 11% level of confidence (*Table XVIII*).

Analyses parallel to those reported in the first part of this section could

TABLE XVIII *ESTIMATION OF OTHERS' ACTION BY SUBJECTS PARTICIPATING IN GROUP MEETINGS CHARACTERIZES BY "HIGH" AND "LOW" ACTUAL PROPORTIONS OF POSITIVE DECISION AND BY "NO" DECISIONS (8 degrees of freedom)*

Estimated % volunteers	*Experimental Commitment*			
	High	*Low*	*None*	*Total*
76–100%	23	10	3	36
51–75%	16	22	2	40
26–50%	24	45	14	83
01–25%	37	43	42	122
0	0	0	0	0
No answers: Don't know	28	33	41	102
Total	128	153	102	383

$\chi^2 = 46{\cdot}684$ $\quad p = {\cdot}1\%$

now be made, using the data on perceived, rather than objective, consensus as the basis for categories to be compared.

Action was found to be related to perceived consensus, i.e. more actors were found among subjects who made a high estimate of others' action than among subjects who made a low estimate. The difference is significant at the 8% level of confidence.

However, in view of the obtained relationship between objective and perceived consensus (*Table XVIII*), this result might simply be a reflection of the already established relation of action to objective consensus.

In order to check on the potency of *perceived* consensus as an independent variable, a comparison of actors' and non-actors' estimates of the action of others was therefore made separately for "high", "low", and "no decision" groups.

No significant differences were found between actors and non-actors from "low" and "no decision" groups, but a difference significant at the 7% level of confidence was found within the "high" group.

Since this finding might still be attributed to variations of actual proportions of positive decision in the various experimental sessions in which the subjects composing the "high" category participated, a separate inspection of answers to the "estimated % action" question was made for each of the 13 sessions involved. The actors and non-actors in each individual group, of course, witnessed the same reaction of their co-members to the commitment request. The larger estimate of volunteers on the part of subjects who themselves volunteered could thus be traced to its source. In 10 of the 13 groups the actors *did* make such higher estimates. The sign test (7) applied to these data established them as significant at the 5% level.

C. Consensus and Reported Action. It was considered interesting, at this point, to look back to the "Reported Action" data. Hypothesis 4 is concerned with forces leading to action. The trends and differences established above would be attributable, theoretically, to a force created by the individual's perception of his group's nearly unanimous decision to act.

It had previously been established that false reports of action (there were 10) were *not* related to experimental treatments (cf. fuller report of this study (2)). The question now arises: Are these false reports related to the degree of consensus regarding willingness to volunteer evidenced in the group to which the subject belonged?

If a greater force toward *Action* was established in "high" groups, greater motivation toward *reporting action*, although the report is incorrect, might also be expected in subjects from "high" groups.

The ten "inaccurate reporters" were examined for the consensus type of groups from which they came, and compared with the number of other non-actors in their groups who did *not* make an erroneous report of action.

The frequencies in the first column of *Table XIX* are too small for a χ^2 test. The maximum likelihood criterion (6) was, therefore, applied, and

TABLE XIX *REPORTED ACTION OF NON-ACTORS PARTICIPATING IN "HIGH", "LOW", AND "NO DECISION" GROUPS*

	Yes	*No*	*Total*
High	6	86	92
Low	2	123	125
No decision	2	87	89
Total	10	296	306

p=14%

the difference established as significant at the 14% level of confidence. Since the differences occur in the expected direction (i.e. more erroneous reports of action in "high" groups), the chance probability of these findings is actually lower than the reported percentage figure (cf. footnote to *Table I*).

These data, clearly, are completely independent of the action data presented above. The trend, nevertheless, is in the same direction. That is, more subjects are found in "high" groups who carry out the action, and more non-actors are found who *say* they have carried it out, when in actuality they have failed to do so.

Summary

The foregoing analyses can be summarized as follows: When an influence attempt coupled with a request for decision or commitment is successful enough to prompt a large proportion of the group to indicate a positive decision, and when the members of the group perceive this high degree of consensus, the data show some probability that members will:

a. carry out the action themselves, or
b. report having done so

to a larger extent than will members of groups in which a smaller proportion of positive decisions was obtained.

V. A Redefinition of "Group Decision"

The preceding sections have, briefly, revealed results that rejected hypotheses 1 and 3 and gave support to hypotheses 2 and 4. That is, Group Discussion, *per se*, was not found to be a variable that served to heighten the probability of action, nor was Public Commitment found to be such an effective variable.

The factor of decision, on the other hand, was found to be related to significant differences in outcome variables. A high degree of actual and perceived group consensus regarding intention to carry out an action was also shown to be related to Action and Final Attitude.

Populations from the present study can now be selected in such a manner

TABLE XX *NUMBER AND PROPORTION OF SUBJECTS PARTICIPATING IN "HIGH" AND "NO DECISION" GROUPS WHO FULFILLED THE ACTION CRITERION (one degree of freedom)*

Positive Decisions	*Total* N	*No. Acting*	*% Acting*
High	151	45	30
None	135	20	15
	$\chi^2 = 9{\cdot}146$	$p = 1\%$	

as most closely to approximate the populations in the three Lewinian experiments with respect to the variables that have been demonstrated to have an effect on the outcome variable of action.

In the Lewinian experiments, it will be remembered, "group decisions" were invariably obtained with 100% unanimity. Action (or reported action) from such groups was, in all cases, compared with the action of subjects who had been exposed to no request for a decision.

Comparison should be made, then, between the action of subjects who participated in groups where decision was requested and a high proportion of positive decisions was indicated by participants ("high" groups), and that of subjects from "no decision" variations, whose decision was not requested, and no indication of degree of consensus was available to the subjects. This comparison is presented in *Table XX*.

Considering, further, that 100% commitment in the Lewinian experiments meant that *every* subject was a committer, it follows that the "follow-through" criterion is actually applicable to all subjects exposed to "Group Decision" in those experiments. An even more comparable analysis, then, might be one that contrasts action-*committed* participants in "high commitment" groups with the action of all subjects not exposed to a request for decision:

TABLE XXI *NUMBER AND PROPORTION OF THOSE SUBJECTS WHO MADE A POSITIVE DECISION IN "HIGH" GROUPS, AND OF SUBJECTS PARTICIPATING IN "NO DECISION" GROUPS, WHO FULFILLED THE ACTION CRITERION (one degree of freedom)*

Positive Decisions	*Total* N	*No. Acting*	*% Acting*
High	131	45	34
None	135	20	15
	$\chi^2 = 13{\cdot}766$	$p = {\cdot}1\%$	

It is clear, of course, that the highly significant results reported in *Tables XX* and *XXI* represent a combination of two effects previously established. Nevertheless, the impressive differences between two experimental

conditions obtained in the Lewinian experiments may be said, in this manner, to have been reproduced. This "reproduction", however, permits a much clearer identification of the variables to which the large differences previously reported can be attributed.

The evidence presented here indicates that the results that have been attributed to "Group Decision" are not necessarily due to the group discussion technique. The factors of decision and perceived group agreement regarding the direction of such decision alone have been shown to be as effective in increasing the probability of the execution of an action as "group decision" in the Lewinian experiments.

SUMMARY AND CONCLUSIONS

The principle objective of the experiment was the assessment of the contribution of four variables to previously demonstrated effects of a set of experimental conditions termed "Group Decision".

The results of the study may be summarized as follows:

1. Group discussion, as an influence technique, was *not* found to be more effective inducement to action than a lecture or no influence attempt at all.
2. The factor of decision regarding a future action *was* found to be effective in raising the probability that such action would be executed.
3. A decision indicated by a public commitment was *not* found to be more effective in assuring the execution of the decision than one indicated less publicly or anonymously.
4. A high degree of actual or perceived group consensus regarding intention to act *was* found to raise the probability that individual members of the group would execute the action above the probability of action by members of groups characterized by a low degree of consensus.

Two of the variables, group discussion as an influence technique and public commitment, were thus found to be inessential to the reproduction of previously obtained results.

It was further shown that the combination of the two other variables—the process of making a decision and the degree to which group consensus is obtained and perceived—was alone capable of generating differences as large as those reported in the classic experiments of Lewin and his co-workers.

There remains the problem of the extent to which these results may be generalized.

The experimental reports of both the Lewinian and the present study have referred to "group discussion" and "lecture" as to simple, self-evident operations. Yet there undoubtedly exist tremendous qualitative variations in both. Variables such as leadership technique, salience of subject matter, group cohesiveness, etc. would certainly be expected to affect the influence of the manipulations upon subsequent action by the participants.

The results of the present experiment, then, by no means imply a blanket

negation of the usefulness of the variables here found unnecessary to the replication of the Lewinian results. The experiment was designed and executed, rather, to test the over-generalizations that have, at times, been drawn from the dramatic results of the Lewinian studies.

More credence has been given by the present study to the proposition that a decision request and substantial group consensus are likely to assure an increase in the effectiveness of any group influence attempt. The experimental data also indicate, on the other hand, that group discussion and public commitment are not *necessary* components of successful "group decision" operations.

The label "group decision" is, actually, still consistent with the procedures that were here demonstrated to be effective in influencing the behavior of members of a group. The use of this term, however, is now likely to create more confusion than it has in the past. It has already been mentioned that the same term is widely used in the field of industrial and human relations to refer to a genuine group solution of problems involving commonly perceived obstacles to group goals. Since the publication of the results of the Lewinian experiments in the immediate area of "decision about individual goals in a group setting", the term "group decision" has also become associated with a procedural requirement of conducting a group discussion before the introduction of a stimulus for decision.

In the light of the findings here reported, therefore, "group decision" might profitably be re-defined as "decision about individual goals in a setting of shared norms regarding such goals".

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BIOGRAPHICAL NOTE

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SALIENCE OF MEMBERSHIP AND RESISTANCE TO CHANGE OF GROUP-ANCHORED ATTITUDES[1]

HAROLD H. KELLEY

A basic finding in social psychology is that the attitudes a person holds depend in part upon his social contacts and particularly upon the groups in which he holds membership. At the same time, it is apparent that the typical individual, at least in our own culture, simultaneously belongs to a number of different organizations and is associated with a variety of groups. While these different sources of attitude anchorage sometimes mutually reinforce one another or affect non-overlapping areas of attitudes, they often exert contradictory influences upon the person. This phenomenon, termed "cross-pressures", has been investigated primarily with respect to political issues (5, 7).

An important problem created by the existence of cross-pressures is whether, as an individual moves from one situation to another, there are concurrent variations in the extent to which his various social affiliations operate to support his attitudes and to determine the opinions he holds. We might expect that at any given moment conformity to a specific group's norms will depend upon the degree to which cues associated with that group successfully compete with other cues in the individual's environment, capture his attention, and arouse his conformity motives. The phenomenon singled out for consideration in the present research has to do with situational variations in whether or not symbols or "reminders" of a specific group are present for its members and the effects of this variation upon their resistance to communications contrary to the group's norms.

1. This study was conducted at Yale University as part of a research program on communication and opinion change. This program is directed by Professor Carl I. Hovland and is financed by a grant from the Rockefeller Foundation, to whom acknowledgment is gratefully made. The author wishes to express his deep appreciation to the many school and university officials and students who gave of their time to make this investigation possible. I am also indebted to Carl Hovland and Irving Janis for their helpful suggestions in planning the research and preparing this article, to Thomas Kemm, Bert King, and Arthur Woloshin for their technical contributions, and to Chris Argyris for his comments on the manuscript.

The degree to which, in a given situation, a specific group is present and prominent in a person's awareness is termed the *salience* of that group. In some instances high salience corresponds to presence in the center of the person's attention, but it is not the intention here to restrict the notion to instances where there is a fully conscious or reportable awareness of the group. Possible differences in the salience of the various aspects of the group or its norms will be disregarded and reference will be made only to general salience of the group, on the tentative assumption that salience of any aspect of the group heightens the tendency to conform to its norms at that particular time.

Several theoretical discussions are pertinent to this problem. In an outline of the psychological consequences of minority group membership, Lewin noted that sometimes a person's belonging to one group is dominant and sometimes his belonging to another. At any given time, the dominant group largely determines the person's feelings and actions. Lewin considered the particular group that dominates in a given situation to be related to the characteristics of that situation (8). Elsewhere, he took account of the effects of motivational factors upon the relative dominance of different sets of behavioral and attitudinal determinants. In this regard, he postulated that an increase in the intensity of the need related to a certain goal increases the relative potency (read "salience") of the situation containing that goal (9, pp. 34–35). Thus, it would seem reasonable to expect persons who are strongly motivated to achieve or maintain membership in a given group to relate controversial questions to its norms, whether or not the group or its symbols are immediately present.

Other related discussions are those which attempt to account for inconsistency in attitudes and behavior (for example, cf. 2). It is common knowledge that expressed opinions vary from situation to situation and often exhibit apparent self-contradictions. Undoubtedly, some of these variations are due to conformity to the social pressures of the moment and represent a more or less conscious, opportunistic attempt to avoid criticism and obtain approval. However, it is also possible that the apparent disregard for the norms of a group, which at other times and places plays an active part in the determination of attitudes and behavior, reflects its temporary absence as a psychological force.

Recently, Eugene and Ruth Hartley have discussed the problem of "evoking specific reference groups" (3, pp. 478–481). They describe several relevant findings, for example, the "interviewer effects" found in public opinion polling, which can be interpreted in terms of variations in the group roles that respondents assume when confronted by different social situations.

An investigation by Charters and Newcomb (1) was specifically directed at the problem of the effects of the immediate social situation upon opinions expressed on an attitude questionnaire. They administered the questionnaire to three comparable groups of Roman Catholics under the following conditions:

1. In a large class with many other students.

2. In a small group by themselves, but with no mention of their church membership or of the reason for their being together.

3. In a small group by themselves where, before answering the questionnaire, they were told that they had been called together as Catholics in order to obtain their help in constructing a questionnaire on religious beliefs and were asked to discuss the "basic assumptions" underlying the opinions of all Catholics.

In the last variation, the common religious affiliation of all subjects in the room was repeatedly emphasized. In all three variations, the subjects anonymously answered a questionnaire that contained, among other items, a number of critical ones related to Catholic norms but so worded that they could also be answered by the subjects in their roles as members of other groups. The results showed that subjects in the third variation answered these critical items more in the manner prescribed for Catholics than did subjects in the other two variations.

There is some ambiguity as to whether this result is, as the authors suggest, due simply to "heightening the individual's awareness of his membership in the specified group by vivid reminders of this membership" (p. 415). First is the possibility that the initial discussion of "basic assumptions" in the third variation gave the Catholics new information about their church's values, which enabled them to conform more closely than did their prior, less clear conceptions of the norms. Charters and Newcomb attempted to minimize this by asking their discussion leaders to avoid discussing what Catholics *should* believe or the opinions they would give on specific issues. Another possibility is that the subjects were motivated to answer as "good" Catholics. For example, being aware that all persons in the room were Catholics, the subjects may have foreseen the possibility that the data would be examined to determine how uniformly Catholics adhere to their church's norms and the subjects may have wanted to have their religious group make a good showing in this respect. Again, the investigators attempted to eliminate this factor by instructing the subjects to give their own personal opinions. Charters and Newcomb conclude from their findings that "an individual's expression of attitudes is a function of the relative momentary potency of his relevant group memberships" (p. 420).

If, as this suggests, situational cues affect the opinions a person expresses, they may also affect his resistance to counternorm communications. It would seem reasonable to assume that the salience of a group determines its availability as a possible source of resistance to change, the strength of the resistance being determined by other factors, such as how highly membership is valued. The purpose of the present experiment was to test the following hypothesis: When group-anchored attitudes are exposed to counter-pressures, their resistance to change at the particular time will be greater with high salience of the relevant group than with low. In addition, the procedure was designed so as

to determine whether the phenomenon described by Charters and Newcomb would appear under more rigorous conditions than theirs, where subjects are mixed together in terms of their religious affiliation and are not told that this factor is involved in the investigation.

A further purpose of this study was to obtain some initial evidence on the relative permanency of attitudinal changes accomplished under conditions of high and low salience. If it proves to be true that a communication will produce more immediate change when opposing group norms are at a low level of salience than when they are highly salient, this might suggest that where group anchorage is important a communicator would be wise to approach his audience when the pertinent group is in the background and they are preoccupied with other loyalties and interests. However, the problem immediately arises as to the fate, with the passage of time, of changes produced under these conditions. When the group becomes salient in subsequent situations, we might expect the resistance to the communication to be restored and to produce a reversion to the old attitudes. This would reduce the difference in final attitudes between persons initially with low salience and those initially with high. There are still other lines of reasoning that lead one to expect changes produced under conditions fostering low salience to be maintained *less well* than those produced under conditions fostering high salience (cf. Discussion).

PROCEDURE

Attitudes of members of the Roman Catholic Church were studied within high school and college age groups. This particular group membership was chosen in order to provide the possibility of comparing the results with those of Charters and Newcomb. The experiment was conducted during regular class sessions when members of all religious faiths were present and when, because of the presence of cues related to competing loyalties and interests, the salience of any particular religious affiliation could be expected to be relatively low. The students were first given short readings, some of them receiving material intended to heighten the salience of Catholic membership and others receiving unrelated "neutral" material. They then answered an opinion questionnaire containing items that were related to Catholic norms but were carefully selected so as to involve other roles and memberships and to heighten the salience of Catholic membership as little as possible. In addition, two out of every three of the subjects received, as part of the questionnaire, a communication intended to modify their opinion responses. This was done by including for each item in their questionnaire, information purporting to give the opinion of the typical student at the same level in school. The "typical opinions" were indicated at positions fairly divergent from those most acceptable to Catholics and thus constituted a counternorm communication for them.

Through appropriate combinations of these materials, two main experimental conditions were created:

1. Communication, high salience.
2. Communication, low salience.

In addition, an experimental condition with no communication and high salience was used in order to check upon the effectiveness of the communication. A random procedure was used for assigning subjects to each experimental variation, so the subjects within the three samples can be assumed to be comparable initially, within the limits of sampling error. The basic data consist of a comparison of the attitudes expressed by members of various religious groups under these conditions, the questionnaire providing an immediate after-test of the experimental treatments.

Three days after the initial testing, most of the subjects were given a delayed after-test. The same questionnaire was readministered, but this time under the "no communication, high salience" condition for all subjects. The data from this delayed after-test provide the means for studying the loss of the initial opinion shifts as time passes and church membership becomes salient for all Catholic subjects.

The specific characteristics of the subjects and details of the procedure are as follows:

1. *Subjects*

Two hundred and seven third-year students in a public high school and 247 second- and third-year students in a metropolitan university. The experimental procedure was carried out during regular class sessions (high-school English classes and introductory college courses in psychology and sociology) where students of various religious faiths were present. In order to avoid one extraneous possibility of salience arousal, the question of religious affiliation was not raised at any time during the experiment.

For the high-school Ss, identification of religious affiliation (whether "Catholic", "Jewish", or "other") was made on the basis of family names. The judgments as to inclusion in the first two categories were made by two judges independently and with very high agreement. Only those names on which both judges agreed were included among the "Catholics". (These consisted mainly of Italian and Irish names and, in a few instances, Polish. Demographic studies of the community in which the high school is located show that over 95 per cent of persons from these national backgrounds are Catholics.) The classification "Jewish" was established to provide a category that could be assumed to contain virtually no Catholics. The results from the "Jewish" and "other" classifications proved to be so similar that they were combined to provide a single category of "non-Catholics". Religious affiliation of the college Ss was determined by a direct question asked at the conclusion of the experiment.

2. *Introductory Instructions*

After being introduced by the class instructor, the experimenter gave instructions, the essence of which is as follows: "We've been making a study of the opinions of students in this area. With you, we'd like to try a somewhat different procedure from the usual. Before giving us your opinions on these questions, we want you to take your minds off the things you're thinking about now—your class work, things going on here at school, and your friends. To help you do this we want you to read some short articles. These have nothing to do with the questions we're going to ask but are simply articles about well-known men or organizations we thought you might find interesting. While you're reading these, relax and take your minds off the things you're thinking about now. Then we'll ask your opinions on various matters."

Booklets containing three articles and the questionnaire were distributed and the Ss were asked to give their birthday, sex, and (in the case of the high-school students) name. They were then instructed to begin with the first article and to read rapidly for a short time without turning to the questions.

3. *Reading-Material*

The three articles dealt with either famous men or world organizations. (Classes receiving the "famous men" series at the first session received the "world organizations" series at the delayed after-test, and vice versa.) Only enough time was allowed for reading the first of the three articles, the content of which was varied in order to produce the high and low salience conditions. The other two articles were similar in content to the low salience reading. In the "famous men" series, the "high salience" article dealt with the life of Pope Pius XII and his role as international leader of the Catholic Church; the corresponding "low salience" reading summarized the life of (then) General Dwight D. Eisenhower. In the "world organizations" series, the "high salience" article described the world-wide missionary work of the Catholic Church; the "low salience" article described the work of UNESCO. (The "famous men" and "world organizations" series produced similar patterns of results and hence no distinction is made between them in the presentation of the data.)

All articles were selected from current books and magazines and were edited to ensure student interest. The "high salience" articles were carefully selected so as to contain no references to the issues raised in the opinion questionnaire. They constituted very favorable pictures of the Catholic Church, its activities, and leader, as drawn by outside observers. They were intended to make a Catholic feel proud of his church and, at the same time, bring his church membership into the forefront of his awareness.

4. *Opinion Questionnaire*

After most Ss had finished reading the first article, the entire class was

stopped and asked to complete the opinion questionnaire. The instructions included strong assurances that their answers would be treated confidentially.

The questionnaire consisted of 18 critical items, with six irrelevant "filler" items distributed among them. The critical items dealt with four broad topics, examples of which follow:

a. *Censorship* of books, movies, plays, etc.: "Censorship of books and movies is *not* good in our country; a truly free people must be allowed to choose their own reading and entertainment."

b. *Parental control* over children: "Parents should give their children complete freedom when it comes to deciding about matters like political and religious beliefs."

c. Traditionalism in *religious practices*: "Religion should move away from the traditional doctrines and practices and adapt itself to modern life."

d. *Loyalty* to nation versus loyalty to other organizations: "A person's loyalty to his country is far more important than his loyalty to any institution or organization of which he is a member."

Subjects responded to these items by indicating on a rating scale the extent of their agreement or disagreement with each. From the eighteen critical items, a total score was computed for each S, with a *high score representing a high degree of conformity to what the investigator prejudged to be the Catholic norms on these questions.*

5. *Communication*

The communication delivered to certain of the Ss consisted of special check marks placed along the rating scales provided for responding to the questionnaire items. On the 18 critical items, these marks were placed in the half of the scale opposite the end thought to represent Catholic norms. These marks were placed in a standard pattern, which was the same for all subjects receiving the "communication".

Before the Ss started answering the questionnaire, the experimenter explained these marks as follows: "As I said before, we've already given these questions to a number of students in this area. We thought this might be more interesting for you if you could see how other students have answered these questions. So we've placed red check marks in your booklets to show where, *on the average*, other students have answered the questions. I'm sorry we didn't have time enough to put these check marks in all the booklets so some of you may not have them. Those of you who do have them need not pay any attention to them if you don't want to. Just give your own opinions about these matters."

For Ss given the communication, the initial opinion measurement constitutes a test given *immediately after* the communication since the S presumably responds to each item after reading it and noticing the location of the check mark. The effectiveness of this type of communication has previously been demonstrated. Kulp, for example, studied the effect of opinion responses

attributed to various kinds of people (e.g. educators, lay citizens) and found that even unlabelled responses produce some effect (6).

6. *The Three Experimental Conditions*

The various reading-materials and the two versions of the questionnaire (with and without the special check marks) were combined into test booklets to produce three different experimental conditions:

a. No communication, high salience.
b. Communication, high salience.
c. Communication, low salience.

The three types of test booklets were intermixed and distributed at random within each classroom. In the remainder of this paper, subjects will be identified in terms of the experimental booklet that they happened to receive during this first session.

7. *Delayed After-Test*

For all high-school Ss and half of the college Ss, the above procedure was repeated in its major details three days later. However, at this time all Ss received the "no communication, high salience" set of materials, the purpose being to determine the relative retention under high salience conditions of opinion changes produced initially under different degrees of salience. The readministration of the procedure was explained to the subjects as an investigation of the variability of responses to the questionnaire. They were requested to try to answer the questions as if they had never seen them before and not to try to remember how they had answered them earlier.

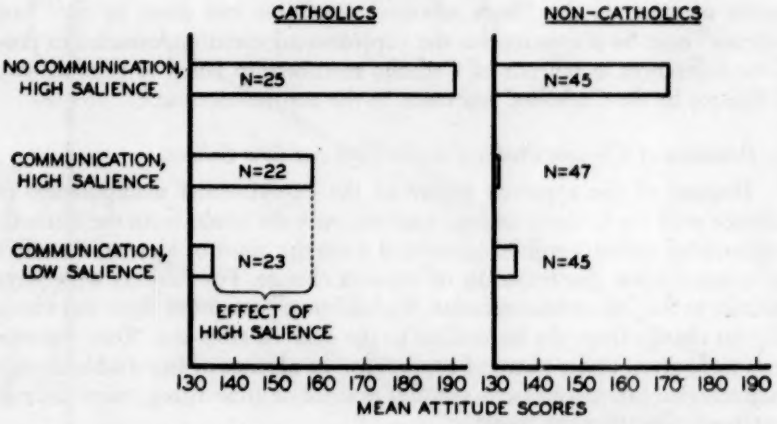
RESULTS

1. *Effects of Salience on Resistance to Change*

The results for the high-school students are presented in *Figure 1*, where high scores represent close conformity to what were prejudged to be Catholic norms. The validity of this prejudgment is apparent from the fact that for the "no communication, high salience" variation the Catholic subjects showed significantly higher scores than the non-Catholic subjects ($p. < \cdot 01$). Thus, it seems clear that the questionnaire measures attitudinal dimensions on which Catholics differ from non-Catholics.

It is also evident in *Figure 1* that the communication was effective in producing changes in attitude responses. The communication presented a more extreme position on the issues raised in the questionnaire than that taken by non-Catholics, so it operated to shift their responses as well as those of the Catholics. The difference between the "no communication, high salience" variation and the two communication samples is significant at beyond the one-per-cent level of confidence for both religious classifications.

FIGURE 1 *THE EFFECTS ON ATTITUDE SCORES OF VARIATIONS IN SALIENCE OF CATHOLIC MEMBERSHIP FOR HIGH-SCHOOL STUDENTS*



The expectation of greater resistance to change for the Catholic subjects with high salience of their church than with low salience is borne out by the data in *Figure 1*. Of the Catholics receiving the communication, those for whom the church was highly salient showed higher attitude scores than those for whom it was not ($p < .05$ using a one-tailed test). Subjects of other religious affiliations who received the communication expressed much the same attitudes, whether receiving the salience-arousing materials or not, which is to be expected because the salience of the Catholic Church is not relevant to their attitude anchorage.

Table 1 presents the results for the college students. The evidence for the relevance of the questionnaire and the effectiveness of the communication is similar to that obtained from the high-school students. In the "no communication, high salience" condition, Catholics score significantly higher than non-Catholics ($p < .01$). Subjects receiving the communication score lower than those without it, both for the Catholics ($p < .01$) and non-Catholics ($p < .01$).

TABLE 1 *THE EFFECTS ON ATTITUDE SCORES OF VARIATIONS IN SALIENCE OF CATHOLIC MEMBERSHIP FOR COLLEGE STUDENTS*

Experimental Condition	*Catholics*		*Non-Catholics*	
	N	*Mean Score*	N	*Mean Score*
No communication, high salience	36	178	42	147
Communication, high salience	32	157	53	123
Communication, low salience	39	162	45	127

With regard to salience and resistance to change, the results from the college students do not support the hypothesized relationship. Among Catholics receiving the communication, there is little difference between the scores of those in the "high salience" condition and those in the "low salience" one. So it appears that the experimental variation intended to produce differences in salience of Catholic membership failed to produce any difference in the Catholics' resistance to the communication.[2]

2. *Retention of Changes Produced under High and Low Salience*

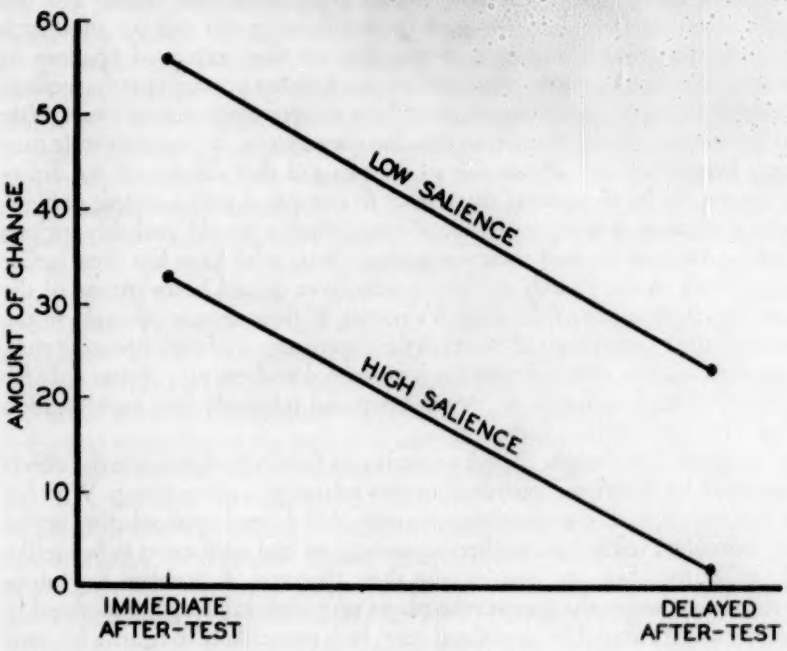
Because of the apparent failure of the experimental manipulation of salience with the Catholic college students, only the results from the Catholic high-school students will be considered from the point of view of the effect of salience upon the retention of opinion change. For subjects who were initially in the "no communication, high salience" condition there was virtually no change from the immediate to the delayed after-test. Since the two tests were given under identical conditions, the absence of any sizable change indicates that extraneous factors such as practice or intervening events did not systematically affect the results.

For the Catholic high-school students initially receiving the communication, a comparison of the high and low salience samples is shown in *Figure 2*. (The data for each sample are presented in terms of how much it differs from the "no communication" group, which serves as a control group.) It can be seen that both samples made large shifts on the delayed after-test in the direction of greater conformity to Catholic norms. The magnitude of this shift over the three-day interval was virtually identical for those given the

2. A correlational analysis was made of the college students' data, in which a tentative measurement of salience was substituted for the experimental manipulation. This measure of the degree to which their church membership was salient for Catholic college students in the testing-situation was based on answers to the instructions: "Write down the first things that come into your mind. Ready? Name two groups or organizations to which you belong." Catholic subjects who named a church group were considered as having their membership at a high level of salience and were compared with those mentioning other than church groups. The former subjects showed somewhat higher scores both within the samples receiving only the questionnaire ($p = .06$) and within the samples receiving the communication with the questionnaire ($p = .28$). These trends were especially marked ($p = .06$ and $p < .05$, respectively) for a part-score based only on the questionnaire items dealing with the topic of censorship. (Incidentally, it may be noted that this particular part-score appeared to be more sensitive than the other part-scores to the variations in salience produced experimentally for the high-school students.) In brief, this correlational analysis of the data for the college students yields some evidence, although somewhat tenuous, in support of the hypothesis that group members express more conforming attitudes when their membership is salient than when it is not, both when they are merely asked for their opinions and when they are exposed to a counternorm communication.

The trends described above remained even when age and a measure of valuation of membership (reported frequency of attendance at religious services) were taken into account. Both these variables were found to affect resistance to the counternorm communication. The older Catholics were less influenced than the younger ones ($p < .01$) and the high-valuation members were less influenced than the low-valuation members ($p < .06$, using a one-tailed test). The latter finding is consistent with the finding by Kelley and Volkart (4) that members' resistance to a counternorm communication is a direct function of how highly they value their membership in the group. Also consistent with that study was the finding that, although high- and low-valuation members apparently differed in their ability to withstand a counter-communication, they tended to express quite similar opinions in the absence of a communication of this type.

FIGURE 2 *RETENTION OVER THREE-DAY INTERVAL OF OPINION CHANGES PRODUCED UNDER CONDITIONS OF HIGH AND LOW SALIENCE*



communication initially under low salience and those exposed under high. In addition, it is apparent that the highs had returned to the level of the control (no communication) sample while the low salience sample still showed a sizable effect of the original communication. (For the difference between the high and low salience samples at the time of the delayed after-test, $p = \cdot 06$.) Thus the results bear out the common observation that the greater the initial change, the greater the opinion change shown on subsequent occasions. There is no evidence that changes induced under conditions of low salience tend to be lost completely or retained to any lesser degree that those produced under high salience.

DISCUSSION

The experimental procedures intended to produce variation in salience of church membership were apparently successful with the high-school students. Although the correlational analysis of the college students' data (cf. footnote 2) suggests that their conformity may be related to salience of church membership, the attempt to vary salience experimentally for this population

appears to have been quite ineffective. Several factors might account for this result. One possibility is that the Catholics sampled in a metropolitan college include large numbers who have drifted away from their church and feel little attachment to it. Consequently, heightening the salience of church membership would have little or no effect on their expressed opinions or resistance to counternorm communications. Another possibility is that college students are more sophisticated about how various controversial issues relate to the norms of their church, so that the questions on the opinion scale may have heightened the salience for all samples and thus eliminated the differences created by the reading materials.[3] As compared with a sample of high-school students, a sample of college-age Catholics would probably include more persons in both of these categories—those who have lost their earlier attachment to the church and those who have gained in awareness of the various implications of the church's norms. If these factors operated in the present case to attenuate the effects of the experimental salience-arousing cues, the phenomenon obtained with the high-school students may appear only for persons of high valuation of membership and relatively low sophistication about relevant opinion issues.

In general, we might expect a number of factors to determine the effects produced by situational variations in cues related to a given group. Whether or not such cues elicit increased conformity will depend upon whether or not the individual values his membership enough to find satisfaction in being like the other members and maintaining their approval. A problem for future research is whether the person who places very high value upon membership will be much affected by situational cues: he is more likely to furnish his own cues and to relate controversial questions to the group's norms whether or not it or its symbols are externally present. The specific kind of conformity behavior elicited by "reminders" of membership will be a function of the person's knowledge and beliefs about the kind of behavior that is expected and approved. In short, the effects of situational cues undoubtedly depend upon the various predispositional factors (e.g. valuation of membership, social rank, knowledge of norms) that have been found to affect the degree of conformity to group norms.

Assuming that a person is predisposed to conform to group norms and resist counter-communications when that membership is highly salient, there remains the question of the appropriate conditions for observing the effects of increases in salience. It is necessary, of course, that the group membership should exist initially at a low level of salience. This is accomplished, as in the

3. A related possibility is that students in college classes, and particularly those taking psychology, are especially aware that experiments often have hidden purposes. Consequently, they become interested in trying to figure out the purpose of any experimental procedure they are asked to follow. Even though they do not deduce the true purpose, their incorrect hypotheses may seriously modify their responses to the instructions. There is no reason to expect the effects of these "hunches" to cancel out one another and, hence, merely to contribute to the random error. It seems more likely that the various hypotheses will have enough in common to introduce systematic variance into the results.

present study, by finding a situation in which competing memberships or interests are aroused and active. Then, if variations in salience are to be detected in the person's expressed opinions, the questions used to elicit these opinions probably must tap areas of conflict between the influence of the group under study and the competing influences. Unless the measured opinions reflect an area of controversy or cross-pressures, there is no particular reason to expect opinions expressed with high salience of group membership to differ from those expressed with low. The existence of cross-pressures is ensured in the procedure of the present study by the use of a counternorm communication. In the absence of such counter-pressures, whether or not there are variations in opinion associated with variations in salience may provide a means of determining the attitudinal areas in which a given group is in conflict with other attitude determinants. In this connection, it may be noted that in the present investigation the censorship items were most affected by variations in salience of Catholic membership. This suggests that, of the topics used in the questionnaire, the issue of censorship represents the most definite area of conflict between Catholic norms and other influences operating in the milieu of our subjects.

Of particular interest for further investigation is the problem of determining the conditions that affect the persistence of opinion changes produced under high and low salience. The above results indicate that in the specific circumstances of the present experiment, the greater immediate change made possible by low salience also appears at a later time. In other circumstances, particularly when group members encounter pro-norm opinions and become sharply aware of their earlier nonconformity, a complete loss of the initial change might be expected.

Several other theories would suggest not merely that the greater change produced under low salience will be completely lost, but that the end result will be a kind of boomerang effect, with the low salience condition giving rise to less persistent change than the high salience condition. One such possibility is that subsequent situations of high salience may produce guilt and anxiety among those persons initially low, if they become aware of having been caught off guard and seduced into deviating markedly from the group norms. One way of alleviating this guilt and of warding off possible social punishment for the nonconformity is to conform more closely to the group norms than ever before. As a result, those persons initially low in salience (and hence most influenced initially by the counternorm communication) would finally be more in conformity with the norms (and less in agreement with the communication) than those initially high.

A second mechanism would have almost the same end effect. If, during the communication situation, the resistance stemming from the group can be aroused and dealt with, then the likelihood is increased that the change will endure through later situations in which the group happens to be salient. The problem becomes one of providing the person with a method either for

resolving the conflict between the appeals of the communication and the counter-pressures of the group or for becoming adapted to it. This may involve revaluation of the group, redefining the issue, resigning oneself to a special role or position in the group, and so on. It may also be useful to prepare the individual for the social criticism that his new views will eventually evoke. The assumption here is simply that when a person changes an attitude in full awareness of the norm that has supported the old position, the reorganization produced will tend to have a better chance of enduring than one produced in the absence of the norm. Accordingly, changes produced under high salience would endure more than those produced under low. This and other hypotheses related to the persistence of changes brought about under various conditions of salience require further experimental analysis.

SUMMARY

An experiment was performed to determine whether the degree to which a specific group membership is salient for a person has any bearing on the resistance to change of attitudes supported by the group. Salience of membership in the Catholic Church was studied for high-school and college students. The experiment provides partial confirmation of the hypothesis that, other factors operating at an appropriate level, the resistance to change of group-anchored attitudes is directly related to the degree of salience of the group. The results from the experimental procedure indicate that for high-school students, while in their classes, salience of membership in the Catholic Church can be heightened by brief reading-materials that describe the Church's leader, symbols, and functions. However, the same procedure did not appear to have a similar effect for Catholics obtained in college classes.

A second purpose of the experiment was to investigate the relative permanency, over a short period of time, of changes accomplished under conditions of high and low salience. The results are consistent with the usual finding that the greater the initial change, the greater the amount of change retained at a later time. Those subjects for whom church membership was low in salience showed greater immediate change than the high salience subjects and continued to show greater acceptance of the communication at the time of a delayed after-test. Suggestions are made for a more rigorous test of theories that predict less retention of changes produced under low salience than of those produced with high.

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BIOGRAPHICAL NOTE

A biographical note on the author of this article appeared in *Human Relations*, Vol. IV, No. 1, 1951. Since then, Dr. Kelley has been co-author (with C. I. Hovland and I. L. Janis) of a volume entitled *Communication and Persuasion*, which summarizes the work of the Yale Communication Research Program.

REACTIONS TO ADMINISTRATIVE CHANGE

A Study of Staff Relations in Three British Hospitals

CYRIL SOFER

EDITORIAL NOTE. *This article represents the substance of a report which Dr. Sofer prepared as the result of his investigations when he was a member of the staff of the Acton Society Trust. It is made available by the courtesy of the Acton Society Trust. Dr. Sofer's work was part of their researches into hospital administration, on which a full report will be appearing in the near future in a series of pamphlets.*

This paper reports upon a field study conducted within three British hospitals, five years after the nationalization of the hospital service. The change-over had by no means been completed. Some of the changes were still being made while the research was in progress; others were still being absorbed, debated, and, in some cases, resisted. While it was impossible by 1952 to design a study of the consequences of nationalization, in view of the fact that no pre-nationalization study existed, the field research developed into a study of staff relations as they existed in a changed and changing organization.

The first section below sets out some characteristics of all working groups and some differentiating features of hospitals. This is followed by a description of staff relations at the time of the field study. The concluding section picks out for emphasis a few generalizations relating to organizational and individual reactions to change and to an increase in scale.

I

Hospitals share certain characteristics of all work organizations. All have a formal system of administration, i.e. a set of rules regulating such matters as the division of labour, responsibility, and power between members; the use of defined channels and procedures of communication; the selection, promotion, discharge, and payment of staff. Parallel with this runs an informal, spontaneous code of behaviour, at some points extending, at other

points modifying the formal rules, and at many points supplying guides to appropriate action where no formal rulings exist.

The organization is characterized also by a prestige system, in which every individual and sub-group has a particular status. It has a unique set of values related to the overall purposes of the whole working group and expressed in the behaviour of its members.

The organization is divided into smaller categories and sub-groups of people consisting either of colleagues having the same skill or of persons whose varied skills are combined for effective teamwork. Besides these formally or deliberately organized sub-groups, there exist "informal" groups of people whose connection with each other is more spontaneous, but the form of whose relationship has usually been influenced in one way or another by the formal administrative pattern of the whole organization.

The individual participant expresses through his membership a preference over other alternatives available to him. He is a member not only of the group as a whole but also of a particular occupational category and of some of the formal and informal sub-groups within the organization. He has a place within the organization's division of labour and a status within its prestige system. He has his place in the organization because he makes a contribution to its overall purposes. He has certain stable expectations regarding his future within the organization.

At the same time, hospitals have certain characteristics differentiating them from other working organizations and giving uniqueness to their activities.[2] Hospitals differ from such other working organizations as factories or business offices in the relatively rigid nature of their typical administration and in the influence of past traditions on their modes of procedure. Sharp distinctions exist between the rewards and prestige of the various occupational groups of which the hospital is composed, and there is little mobility between them; such a social structure fosters the development of different values within the separate occupational groups, a high degree of formalization in interpersonal relations between members, and, at times, tension between them.

The most important division in the hospitals is between narrowly defined "therapists" on the one hand, and "lay" workers on the other. Doctors (and, to a lesser extent, senior nurses) are at the top of an authority and status system facilitating swift decision-taking and an unquestioning acceptance of orders. To this is added prestige derived from the fact that it is around the doctor's skills that the institution is built, and from the belief of the patient and junior staff member in his omnipotence. This belief is itself highly motivated, serving to reassure the persons concerned that the matters of life and death with which the hospital is concerned are in capable hands. The

2. A substantial literature, mainly American, is now being built up on this subject, see, for example, Stanton, Alfred H., and Schwartz, Morris S. *The Mental Hospital*. London: Tavistock Publications, 1954, and Wilson, A. T. M. "Hospital Nursing Auxiliaries." *Hum. Relat.*, 1950, III, 1, 89–105.

prestige of the doctor, his power, and higher rewards tend, at the same time, to be resented by lay staff and other hospital workers. They feel that their part of the work is rewarded neither by a high income nor by glamour, and they receive the impression that the doctor deliberately arrogates his privileged position to himself.

The element of opposition between medical and lay staff tends, perhaps, to be more acute in a mental hospital. The staff usually constitute a residential community into which members carry over the implications of their occupational grading; these thereby gain a deeper personal significance. The use of psycho-therapy involves none of the physical instruments of other medical or surgical treatment; its esoteric nature makes the untrained observer unable to appreciate the nature of the service the doctor provides. His training leads the psychiatrist to interpret his social surroundings in terms of the personality characteristics of those about him; this arouses the resentment of those lacking the technical equipment to reciprocate, and a defensive rejection of the expertise of the doctor.

Hospitals contain a diversity of lines of authority,—medical, lay, and nursing—and often lack unity of control. The actual "production" work of the hospital is carried out by the persons with the highest prestige and not, as in most other organizations, by those with least prestige, so that procedures are geared to their needs, habits, and values rather than those of their subordinates. The status struggle between "production worker" and "paper worker" is conducted in hospitals at the highest level, between doctor and lay administrator.

"Vocational" elements play a major role in motivating the participation of many staff members, so that the job has deep significance for the whole personality and life pattern. At the same time, the hospital is distinctive in the crucial services it performs for the community and in the anxiety-provoking nature of those services. It is well known that the characteristic response of hospital staff to the critical functions they perform is to attempt to maintain sufficient social and psychological distance from individual patients to protect themselves from over-close emotional involvement in their affairs. The frequent "splitting" of the patient into diseased bodily parts rather than regarding him as a complete human being with human needs is part of this defensive reaction. The substitution of means for ends, hospital routine for the patient —the classic "technological defence"—is another. Barriers are set up as an unconscious defence against identification with the patient and consequent anxiety.

While hospitals commonly share such characteristics, considerable differences existed between the hospitals drawn together into the common national administrative structure on the 5th of July 1948. They varied from large mental hospitals with up to 4,000 beds to cottage hospitals with perhaps a dozen. A high proportion were administered and financed by local authorities. These included many hundreds of general hospitals, both large and

small, and nearly all mental hospitals. Many of the remaining general hospitals were administered and financed by voluntary Boards of Management. These relied largely on private donations and varied greatly in their financial status, but prided themselves on their independence from public authorities.

The voluntary hospitals enjoyed the higher prestige, partly owing to their longer history and established reputations and partly to the inclusion among their "honoraries"—doctors who gave part-time services free—of men of the highest professional eminence.

Just as the voluntary hospitals looked down on those of the Local Authorities, so did the general hospitals look down on the mental. The relative isolation of mental hospitals was in some ways a reflection of the tendency, vanishing only today, to regard mental illness with repugnance and to seek to deny its importance.

The major hospitals under Local Authority auspices were characteristically administered by Medical Superintendents, assisted on the medical side by doctors and ancillary medical departmental heads, on the business side by lay administrative officers, and in nursing services by Matrons. The Medical Superintendents had both medical and administrative top authority. The voluntary hospitals had lay Secretaries as their chief administrative officers. Unlike the Local Authority hospitals, they employed no full-time senior medical officers. The "honoraries" formed Medical Committees, which determined, or advised the main hospital committee on medical policy, and the Matron played a powerful role within the hospital.

II

One hospital of each type was accordingly chosen for the field study on which this paper is based and, to facilitate comparison, the two general hospitals were selected from the same group.

HOSPITAL A—A FORMER LOCAL AUTHORITY HOSPITAL

The Appointed Day found A, a general hospital with 500 beds, under the control of a metropolitan Local Authority. Its administration became vested in the Ministry of Health and responsibility for the hospital passed from the Local Authority to one of the fourteen new Regional Hospital Boards constituted by the Minister. The Board grouped A with two smaller general hospitals and three specialized in-patient hospitals and appointed a Hospital Management Committee for their joint administration.[3]

The headquarters of the group H.M.C. were established in the grounds of Hospital A and a full-time administrative staff appointed for the management of all the units within the group, with a Group Secretary at its head.

3. The H.M.C. adopted the name of the A Group H.M.C., since A is the largest hospital of those it administers.

He provides the main link between the H.M.C. and the chief officers within the hospitals, each of which has retained its own internal administrative staff. He communicates Committee decisions to them and they are responsible to the Committee, through him, for the detailed administration of their units.

Financial control, accounting, and the payment of wages and salaries are centralized under a Group Finance Officer, while a Group Supplies Officer buys in bulk for all hospitals in the Group.

Relations with Group Administrative Staff

Of the authorities superior to the hospital in the new administrative structure, staff are in closest and most frequent contact with the "Group", a term used to refer to H.M.C. officers and staff. Since the Group was a product of nationalization and immediate control of the hospital is in its hands, it is the set of relations developed by staff with the Group that represent to them the essence of the new system.

Administration by an outside body is no novelty. But the majority of the hospital staff entered the service at a time when the Local Authority procedures had already become routine and part of a relatively stable environment. Their new administrative officers possess legal authority for the power they exercise but lack the important reinforcement of established precedents and traditional practices. As a result, their instructions do not receive unquestioned implementation but are subject to the most searching and critical comment.

These difficulties are aggravated by the fact that none of the senior Group officers were selected from the staff of Hospital A. They are accordingly looked on with some suspicion as outsiders, and have to build up their reputations step by step with a body of strangers.[4] This situation has probably not been eased by the fact that some of the Group officers and the senior hospital staff had, previously, been at the same level of the Local Authority service. Moreover, Group officers have inherited the bulk of the hospital staff from the previous employing authority and have therefore had little opportunity to choose the personnel of the hospitals they administer.

The grouping together of small numbers of hospitals under each managing authority means that a more intimate relationship can now exist between the immediately superior authority and the staff of each hospital than was previously possible in the case of the larger Local Authorities. This is greatly accentuated, in the case of A, by the fact that the Group and the hospital are close neighbours. The drastic reorganization of the hospital service has, however, been productive of anxiety among many individuals about judgements that may be made of their adequacy for their tasks, making them particularly sensitive to the close scrutiny possible under the new system.

4. It is possible that the transition would have been eased by the appointment of senior administrative staff already within, or well known to, the hospital staff, if suitable persons had been available for promotion, but this, of course, would have involved its own problems.

While the administration of A has been decentralized, in the sense that it is now managed by a body concerned with relatively few hospitals, it has now become feasible for the managing authority to take over certain functions —prominent among them the payment of wages and salaries—that the larger Local Authority found more convenient to leave to the individual units.

This arrangement is extremely unpopular with departmental heads who would otherwise make the payments. They assert that this practice is cumbersome and tends to worsen relations within the working group by reducing opportunities for personal contact between superiors and subordinates. They feel, moreover, that they have lost the prestige and the feelings of power and control that accompany ability to disburse rewards.

One source of difficulty in interaction between Group and hospital staff arises from the fact that the latter include, in the senior medical staff, persons who are not the employees of the H.M.C. but of the Regional Hospital Board, the authority above it. The H.M.C. accordingly lacks the right to give instructions about the facilities for which it is responsible to the senior staff members who operate them. At the same time, the fact that the Group staff possess administrative authority without professional and technical expertise creates a situation in which they frequently have to take advice from the hospital, even from those members of the staff over whom they do have authority, about the precise nature of the orders they should give.

Hospital staff receive some satisfaction from this, but an element of resentment enters when, as is increasingly the case, the Secretary of the hospital is made the instrument or channel of the communication giving the order, as this is seen as symptomatic of an attempt to strengthen the position of lay administration in hospital work and to make the professional man merely a front-line operative.

Relationship of Hospital Staff with Committee Members

The House Committee. While the Health Act provided in the first instance for a two-tier system of administration (the Regional Boards and the H.M.Cs.), the A group, like many others, decided that it would be valuable to set up a number of House Committees to maintain closer contact with individual hospitals. Since, however, it was desired to avoid delegating functions so extensively as to create a three-tier system, it was arranged that House Committees should have power only to make recommendations to the H.M.C.

Each House Committee consists of eleven members of whom three are also members of the H.M.C. The monthly meetings of this committee are attended by the three chief officers of the hospital, i.e., the Medical Superintendent, the Secretary, and the Matron, and also by the Group Secretary.

A section of the H.M.C. is thereby brought into direct and regular contact with the officers who have the greatest responsibility for the day-to-day administration of the hospital. The latter are provided with an opportunity to describe the needs and problems of the hospital to a committee that can

devote attention almost exclusively to A's affairs. The existence of the House Committee further helps to humanize the new system and to bring H.M.C. and hospital closer together, through periodic tours of the hospital by Committee members. Departmental heads, ward sisters, and other senior staff members gain an opportunity to meet members of the bodies that decide or influence their affairs, and to show them their contribution to the overall functioning of the hospital. House Committee visits, therefore, reinforce the hospital's ordinary administrative channels of communication.

Like most members of working organizations, ordinary hospital workers do not take a special interest in, or have a detailed knowledge of, the constitution and functions of higher levels of authority. Many are unaware of the precise role of the House Committee and do not differentiate it clearly from the H.M.C. and its other sub-committees, nor do they understand why both committees and full-time administrators are necessary. "Committee members" tend to be lumped together indiscriminately and are regarded in some sections as uninformed on hospital affairs and inappreciative of staff viewpoints.[5]

A problem arises out of the fact that the House Committee has no executive, but only advisory powers. Senior hospital officers sometimes chafe at the futility of attendance at a committee unable to take positive action, or at the preparation of schemes that, even if approved by the House Committee, are still liable to rejection or deferral by the H.M.C.

Senior staff members criticize the part that committee-work as such plays in management on the grounds that whatever it achieves could be done more rapidly and efficiently by administrative officers, and that uncomfortable decisions can always be postponed indefinitely by shuttling issues between one committee and another. It is often claimed that speedier action was achieved under the old Local Authority system.

The referral of matters from one committee to another can leave staff members irritated or frustrated. They sometimes find that the greater the degree of participation by committees in a decision, the greater the possibility of facts and other considerations being altered *en route*.

The Staff Consultative Committee. One of the most interesting innovations of the new hospital service has been the introduction into hospitals of Staff Consultative Committees. Modelled on an industrial prototype, each consists of two sides, "management" and "staff". They bring together on the management side H.M.C. and House Committee members, Group and hospital officers; and, on the staff side, representatives of all other grades of hospital staff except doctors.[6]

5. It should be said that an honourable exception is usually made of Committee workers who are known to have medical qualifications or hospital experience.

6. At the inception of the National Health Service the doctors preferred to remain out of the system and to have their own separate liaison with H.M.Cs. through hospital and Group medical advisory committees.

The Staff Consultative Committee at A meets every two months, under the chairmanship of the House Committee Chairman; management and staff sides also hold their own separate meetings. In some cases the matters raised by the staff side are dealt with out of hand, partly because departmental heads prefer to remedy a minor grievance than have a full-blown S.C.C. discussion. Where an issue of general staff policy or hospital interest is involved, or where the staff side have not obtained satisfaction from a departmental head, the items concerned are placed on the agenda for the S.C.C. meeting.

The S.C.C. at Hospital A provides a regular meeting-place between committee members and staff, going further than the House Committee, in that staff representatives who attend include not only chief officers, but also representatives of such groups as nurses, physiotherapists, radiographers, pharmacists, porters, and maids. The "representativeness" of the staff side is limited by the fact that only a minority of the hospital employees participate in elections and take an active interest in the proceedings, but this is true of most democratic institutions. Most people in organizations limit their interaction and interest to the people close to them and to events in their immediate environment, and it requires an acute crisis affecting them personally before they become involved in what ordinarily appear to them to be abstract issues of remote policy.

The S.C.C. has given the rank and file of the hospital staff new influence on the shape of their working-environment. At the same time, certain departmental heads are uneasy because they can now be by-passed,[7] and they feel that their authority is to some extent undermined by the right of their subordinates to take complaints about them to the S.C.C. There is, perhaps, greater justification for the objection that membership of the management side is arbitrary; it is an anomaly of the Consultative Committee system that certain members of the management side are just as much employees of the H.M.C. as are the so-called staff side members. The side on which a staff member sits depends on his rank. The position of the Secretary is especially queried, since his authority within the hospital has been so newly acquired.

The two-sided "management-worker" structure of the S.C.C. lends itself to the use of concepts and ideologies limiting the degree of effective consultation and collaboration that can be achieved. Some members of the staff side use meetings to represent themselves as an under-privileged group compelled to prize concessions from an unwilling set of employers, cast in the role of obstinate die-hards, or, at best, of reluctant concession-makers; while, correspondingly, management side members are put in the position of refusing and granting requests.

Unrealistic requests are made and turned down, thus providing the staff

7. This creates a situation somewhat similar to that in industry where a shop steward can by-pass a foreman in the communication system, transmitting information about the foreman that might come back to him in the form of criticism.

side with rational-seeming substance for grudges, which legitimates both deficiencies in their own performance and their hostile attitudes towards higher authorities.

It is difficult, however, for the management side members to avoid an unconscious collusion in the perpetuation of this system, for it confirms their opinion of themselves as a reasonable few among an unreasonable many and makes their own internal relationships more comfortable.

The two-sided nature of the S.C.C. means, moreover, that intra-staff issues tend to be referred upwards rather than subjected to mutual discussion and solution. The committee becomes a stage for the acting-out of tensions generated by the hierarchical hospital system. The machinery provided for joint consultation helps hospital staff to avoid facing the fact that tensions arise between them (as indeed they do between any sub-groups in any work organization), and to project responsibility for their problems on to "management". While this may promote solidarity among themselves, inability to recognize difficulties in their own relationships means that they persist as irritants for which the assignation of blame to "management" offers no really lasting solution.

Relationships Within the Hospital

The most important changes in internal structure have been the redefinition of the rights and duties of the Medical Superintendent, the chief lay administrator, and the Matron. Since all the roles in a given social structure are interdependent, this has implications not only for the mutual relationship of the officers concerned, but also for their relationship with the rest of the staff and for sub-groups of the staff with each other.

Relationships between the Chief Officers. The Medical Superintendent at Hospital A has now been required to restrict his administrative functions to two-elevenths of the time spent on his hospital duties and to relinquish his control over lay administration of the hospital and over the nursing service. These duties fell instead upon the Steward and the Matron, who became directly responsible to the Secretary of the H.M.C. for their execution.

The Steward at Hospital A has, accordingly, been required since the end of 1948, to take greatly increased responsibility for all the non-medical administration of the hospital and has been made accountable for this to the H.M.C. and not to his former superior officer, the Medical Superintendent. Eventually, in January 1952, he was officially designated Hospital Secretary, this title giving further emphasis to the wider scope of his responsibilities.

This gradual method gave implicit recognition to the fact that in any organization it is seldom possible to make a rapid and complete break with past practices. Over a period of time these become encrusted with customs and traditions that are less formalized than official rulings but often less

flexible, and considerable emotional significance becomes attached to their retention.

The formal reallocation of functions between Medical Superintendent and Secretary has not yet involved full reorganization. This is due partly to the difficulties endemic in drawing a clear distinction between medical and lay administration; it can be argued that any administrative act within a hospital has medical implications and can, therefore, be defined as a matter of medical administration.

Change is retarded by the fact that the Medical Superintendent, Secretary, and Matron are not newcomers making a fresh start, but individuals who have worked together over many years in capacities and relative statuses other than those now formally assigned to them.

In the case of the Medical Superintendent particularly, position and incumbent have become so merged with the passage of years that it has become difficult to detach by administrative measures rights and responsibilities of leadership from the individual who had in the past filled the formal role of leader. He retains considerable informal influence over matters now outside his formally defined scope of competence. This is by no means only, or perhaps even mainly, a matter of the reluctance of the Medical Superintendent to relinquish the power that he has exercised for years. The Secretary and Matron hesitate to presume upon their new rights and to invoke the informal sanctions of resentment and disapproval surrounding deviations from the old-established and firmly institutionalized distribution of power and authority.

A large section of the hospital staff, also, continues to behave as if no formal change has been made, and to route information and decisions via the Medical Superintendent. In part, this seems a deliberate resistance on the part of certain departmental heads to a system under which they and their staffs are to some extent subordinate to a "layman" rather than a professional. Their existence cannot be explained solely in terms of habit, routine, and continuation of traditional modes of behaviour. If behavioural modes persist through time, this is usually because they continue to fulfil functions for the organization or individuals concerned, sometimes even unknown to the latter. Interviews with subordinate staff in the hospital suggest clearly that the medical ancillary and nursing staff continue to look to the Medical Superintendent for decisions, because his leadership, active or symbolic, serves an acutely felt need. Accustomed to this, staff members continue to need the security and support flowing from the presence in the post of maximum power and authority of a medical man possessing, in their view, the range of technical knowledge required in hospital work.

Relations of Chief Officers with Other Staff Members. The persistence of the orientation of most departmental heads towards the Medical Superintendent as their superior makes it difficult for the Secretary to establish his new

position. This is despite his formal backing from the Group; it is to him that all circulars and communications of a lay administrative character are sent, and through him that departmental heads become aware of new decisions at Group and higher levels. Just as the new procedures and the attitudes of Group staff represent to the hospital administrative staff unnecessary self-importance and interference, so, in the hospital, many of the hospital Secretary's efforts to assume his new functions are similarly assessed. It is possible, of course, that in both cases insecurity provokes individuals to assert their new status more vigorously than is strictly necessary. We have seen that the hospital Secretary hesitates to insist on his new rights in his relations with the Medical Superintendent because of elements of their old relationship that he has incorporated into this everyday behaviour; the new status is asserted only in situations in which it is not prohibited by the persistence of a built-in habit of deference.

When departmental heads have to use administrative channels, they frequently by-pass the Secretary and go above his head to the Group officers. Once they are compelled to appeal to lay authority, they insist on access to the most powerful, which, of course, confuses the lines of authority and diffuses responsibility and decision-taking.

It was not clear for a while what were the respective responsibilities of the Medical Superintendent and the Secretary. This was partly because formal rules constitute only a minority among all those that guide action in any organization and sufficient time has not yet passed for the older-established informal rules to be replaced by new. Administrative edicts can change formal organization, but cannot work while interaction is still geared to prior rules and underpinned by established values.

Confusion is accentuated by incomplete acceptance of the new system by a staff that frequently does not wish to understand it. Ignorance is sometimes wilful, and confusion can be motivated. There are certain circumstances we like to retain to grumble about. In the same way as individuals can lean against the "inefficiencies" of the Group or of hospital colleagues in order to justify their behaviour and attitudes, ignorance and confusion can serve similar functions. Lack of knowledge or of an orderly procedure provide an excellent reason for neglecting, or leaving to others painful or inconvenient action.

Relationship of the Medical Superintendent with the Medical Staff. In addition to losing responsibility for matters of "lay" administration, the Medical Superintendent at A hospital has been deprived of his former responsibility for the clinical work of the medical staff. Although regarded a consultant after nationalization, he is now merely *primus inter pares* among his consultant colleagues, each of whom has, like himself, full clinical responsibility over a number of beds. At the same time, a medical committee has been formed to take over certain of the duties of medical administration previously performed by the Medical Superintendent. Consultants other than the Medical

Superintendent act as Chairman and Secretary. The Medical Committee considers applications from medical staff for equipment and advises the Group on policy. It has, accordingly, many of the legal and administrative powers once the prerogative of the Medical Superintendent.

Real difficulties stand in the way of the Medical Committee's taking over the Medical Superintendent's functions. A meeting cannot be convened every time a medical-administrative decision is to be taken, nor does a kind Providence ordain that emergencies will occur only during the two-elevenths of his time that the Medical Superintendent is formally permitted to spend on administrative matters. In the absence of alternative provision, it continues to be the Medical Superintendent who, in such circumstances, takes emergency decisions, administers, and coordinates the medical services of the hospital. To some extent, he has leadership thrust upon him.

But in the relationship of the Medical Superintendent with his colleagues it is evident again that old-established procedures often continue to take precedence over the new rulings. He retains a degree of informal authority over his former subordinates, and even the consultants who once worked under him hesitate to go against his wishes, or to invoke the machinery of the Committee when they disagree with him.

The important part played by the persistence of older-established modes of behaviour is emphasized by the fact that the Medical Superintendent is by no means authoritarian in his outlook and is well liked by medical colleagues and the rest of the staff.

Relationship between Occupational Groups. As a major part of the new system, the salaries and conditions of service of hospital medical staff were reorganized. The form taken by the reorganization was determined largely by the massive power of the professional medical associations. The unpaid services of the former voluntary hospitals were now subject to remuneration, and within these and former Local Authority hospitals medical staff were regraded. At hospital A, the Medical Superintendent, his deputy, and certain others of the senior staff were graded as consultants, their salaries nearly doubling in the process.

Administrative staff cast doubt on the practical benefits to the hospital of increasing the number of doctors and raising their salaries. Medical staff, on the other hand, couple with their resentment of Group officers the feeling that their appointment must surely make internal hospital administrative staff superfluous. Administrative staff are thus in a cleft stick, since they feel themselves insecure in respect of both the Group staff and their medical colleagues within the hospital.

The new administrative arrangements regarding the reallocation of duties between hospital officers and the creation of the various hospital authorities appear to have little immediate or conspicuous significance for the relationship of the nursing staff with other groups in the hospital. This may be

largely because of the hierarchical and authoritarian nature of the structure of the nursing profession; on the whole, relationships continue to be regulated in such a manner that the majority remain distant from the focus of decision-making.

Attitudes towards the New System

The new system is said in A to involve too many authorities, too many committees, and too many administrators. This is felt to have the result for A that decision-taking has become slow and cumbersome, that issues have to be referred from one body to another, and that it has become difficult to discover who has given or is in a position to give an effective yea or nay when decisions are needed.

Observation suggests that there is some justification in the criticism in so far as the diffusion of authority and the cumbersome nature of decision-taking are concerned. While this is interpreted by the staff of the hospital as detrimental to them, it needs to be remembered, on the other hand, what the diffusion of authority has, in part, been to them. Consultation of hospital staff is frequent. Although the preparation of memoranda and reports by staff members may be time-consuming, it helps to ensure that the views of staff are considered in administrative planning. A major factor in the unfavourable comparison of the new system with the old appears to be the greater visibility of today's decision-making and administrative processes. Previously, staff members were almost certainly less conscious of the appreciable administrative machinery that existed at headquarters for their government. The fact that it is now almost literally on their doorstep combines with the greater intimacy of the relationship to produce an exaggerated view of the size and complexity of the immediate superstructure.

A further major complaint is that there is too much interference in the day-to-day administration of the hospital. This is mainly because, as we have already pointed out, the new managing authority deals with fewer units than the old and is able to maintain closer contact with them. The impression of interference is accentuated by the novelty of the procedures—even those not initiated by the H.M.C. tend to be ascribed to them—and by the very independence of the Medical Superintendent that the Secretary and Matron have been given, since this brings more individuals within the hospital into direct contact with their superior authority.

Unfavourable reactions towards the new system are connected also with the changes that have been made in the internal administrative system of the hospital. The Medical Superintendent and many others have been disturbed by the changes in their situation. It is clear that a change from a relatively authoritarian to a relatively democratic structure, while in accordance with the prevailing values of our society, can involve a painful adjustment among the individuals concerned until they ascertain again where precisely they stand and until existing interests become adequately liquidated.

The present system is often unfavourably compared with the old. It is, however, almost certainly the case that the relative advantages of the former system are being unrealistically idealized. One could guess that only a small minority of staff members would choose to revert to the old system if an opportunity to do so arose. Many of the criticisms now levelled against the new system are identical with those once levelled against the system it superseded. The "perfect" nature of the former system may be viewed as one of the myths commonly created by working groups in order to give substance to other objections to their present situation. Their main significance may lie in the indication that there are negative elements in their situation, which they cannot verbalize or of which they may not themselves be consciously aware.

HOSPITAL B—A FORMER VOLUNTARY HOSPITAL

At the outbreak of the 1939–1945 war, this hospital had a total of 150 beds, distributed between a variety of departments. Its finances were provided almost entirely by voluntary contributions.[8] The authority of Hospital B was vested in an incorporated Board of Governors, totalling several hundred persons, whose membership rested either on financial contributions to the hospital or on outstanding service to it in some other form. From this general body a Board of Management was elected, with eighteen members meeting monthly. The core of this Board of Management consisted of men and women with demonstrable interest in the work of the hospital, or prominent in business or the professions.

Standing committees existed to attend to specific aspects of the hospital's affairs. Of these, the most important were the House Committee, the Finance Committee, and the Medical Committee. The House Committee, which met weekly, dealt with matters of fairly detailed administration concerning such matters as the purchase of supplies, staff appointments and discipline, catering, maintenance, decorations, statistics of patients treated, and complaints by patients or staff. Liaison with the Board of Management was close enough for House Committee decisions usually to receive approval from the full Board.

The Finance Committee's duty was to provide the Board of Management with a clear picture of the hospital's financial position and of the probable trend of finances. It passed the accounts as they came up for payment, considered all items of expenditure except the most minor, prepared and presented a budget of estimated income and expenditure, and was responsible for the annual accounts.

An important part was played in the affairs of the hospital by a Medical Committee consisting of senior members of the visiting medical staff of the hospital. The formal responsibility of this Committee was to report and recommend regarding medical services to the Board of Governors but,

8. The hospital was, however, heavily subsidized during the war by the Government's Emergency Medical Service.

although the Board retained the final word, in practice the Committee possessed considerable influence.

With nationalization, considerable changes occurred in the external relationships of Hospital B. It ceased to be dependent on private contributions and Emergency Medical Service contributions for its finances. These became the complete responsibility of the State. The authority of the old Board of Governors and Board of Management disappeared and was replaced by that of the Ministry of Health, the Regional Hospital Board, and the Hospital A Management Committee. While nationalization meant for A the substitution of one set of outside authorities for another, it involved for B a superimposition of external authority upon the hospital. This is the first time that the hospital has operated under the control of committees meeting away from its premises, dealing with it as only one among several hospitals, and having their own separate, full-time administrative staff superordinate to that of the hospital.

Relations with Group Administrative Staff

Until the Appointed Day the Hospital Secretary attended all Board of Management and Sub-Committee meetings and was required to prepare agenda, to advise on matters of policy, and to supply members with information necessary to their decisions.

The Matron, too, was in close touch with the hospital's government. She reported to the Board of Management and attended the discussion of her report. She kept in close touch with the Board through the weekly meetings of the House Committee, and was a member of a standing nursing committee that dealt with nursing, domestic, and catering affairs and recommended appointments and promotions.

The interposition of a full-time administrative staff between themselves and their managing authority creates an unprecedented situation for the Secretary and Matron who, between them, are responsible for the administration of Hospital B. It is now the Group staff and not they who have the duty of advising on the hospital's policies and procedures. This is carried further in House Committee meetings, held at the hospital, where the Group Secretary, and not the Hospital Secretary, presents the two-monthly administrative reports on the hospital.

Supplies are purchased from Group Headquarters by the Supplies Officer, and contracts are completed on behalf of the hospital. Wages, determined by the National Whitley Council, are calculated at Group headquarters and paid by a Group clerk who travels over to the hospital. Recruitment of most grades of staff is performed by the Group administration and arrangements for superannuation and retirement are completed at Group headquarters. Staff members are transferred from other hospitals to Hospital B and the Group has the right to transfer members of B to the other hospitals it administers.

Present arrangements affect the authority and independence of a variety of individuals in the hospital, apart from the Secretary and Matron. The Medical Committee, while still in existence, no longer makes recommendations concerning appointment and promotion of doctors; a newly constituted Group Medical Advisory Committee stands between it and management.[9] While departmental heads in Hospital A now have rather more opportunity to choose members of their departments, those in Hospital B now have rather less. The hospital engineer has acquired a new superior in the form of the Group engineer, and the almoner's department is permitted reduced discretion in the disbursement of monies.

The present administrative set-up leads almost inevitably to participation by the Group staff in what were previously the domestic affairs of the hospital. It could be argued that such incidents occur less because of the formal nature of the new administrative system than because of the particular distribution of responsibilities which the H.M.C. administration of Hospital A chooses to make between headquarters and working units. There are, on the other hand, pressures in the system itself—especially those involving accountability of the H.M.C. to its superior authorities—which must lead to "intervention" in the affairs of the hospital. The Group cannot permit the hospital to differentiate in the wages of two porters on the same grade, nor permit the size of the staff to remain intact when national economy campaigns are under way, nor to neglect returns that they themselves must render.

In the case of Hospital B, the locus of authority has moved from the hospital to outside authority in the form of the H.M.C., themselves responsible to more remote policy-forming bodies.

Relations with Committee Members

There exists, as for Hospital A, a House Committee, which, by bringing a core of H.M.C. members to the hospital for two-monthly meetings and, for periodic tours, puts departmental heads and rank and file into at least intermittent touch with higher management.

The present House Committee meets less frequently than the old and is an advisory body having, apparently, less direct influence with the H.M.C. than the former House Committee had with the Board of Management. The influence of the House Committee is limited by the necessity for the H.M.C., to which it makes recommendations, to balance its needs against the needs of the other hospitals under its auspices.

The old Board of Management is generously represented on the new House Committee, supplying five out of its twelve members. It was hoped that this would help to ensure as great a continuity of the traditions of the hospital as was compatible with the terms of the new national service. Whereas the major traditions of the former Board members emphasized

9. It should be said that two members of the B Medical Committee are, however, also members of the Group Medical Advisory Committee.

independence and flexibility in administration, the present composition of the House Committee appears, however, to foster competition between values and to create friction between former traditionalism and present rationalism, rather than to mediate between the old and the new.

The Staff Consultative Committee

As in Hospital A, the meetings of the Staff Consultative Committee foster contact between a variety of grades of the hospital staff on the one hand, and the new level of authority on the other. This is, perhaps, especially important in the case of B, because of the limited role the House Committee appears to play in this area and because of the new separation of higher management from the hospital.

Working groups usually elect as their representatives to such bodies as consultative committees or union branches those among their members whose duties give them closest access to management, who are in strategic positions in the communication system of the organization, and who are the most popular people. This led, in the first instance, to the election of the Deputy Secretary of the hospital as staff side Chairman, and of the personal assistant of the Secretary as staff side Secretary. Although other staff members now fill these positions,[10] the Consultative Committee appears in its early and formative years to have revolved to a considerable degree round the Hospital Secretary (who acts as Secretary of the management side) and his Deputy and Personal Assistant (acting respectively as Staff Chairman and Secretary). Their loyalties have been mainly to each other and to the hospital as a working unit, rather than to one or other "side" of a management-staff dichotomy. There seems, accordingly, to have grown out of the consensus of several departments and levels of the hospital staff a distinct tendency to use the Consultative Committee mainly to represent the hospital as a whole to the H.M.C. and the Group administration. To some extent, primary group loyalties among all ranks of the staff appear to have overridden other desires they may have to resolve internal management-staff problems.

There has been a strengthening of the position of the Secretary and his administrative staff within the hospital. Although he, like his colleagues, has been removed to some extent from the locus of top authority since the Appointed Day, today he, among all the staff, is the closest to it. He is the recipient of instructions and circulars from the H.M.C. and Group administration, he is the main channel of two-way communication between Group and hospital staff, and he is responsible to the Group for the execution of their policies within the hospital. At the same time, supervision of several departments, including catering, physiotherapy, and linen stores, has been transferred from the Matron to him. This represents a considerable incursion into what was formerly the province of the nursing administration.

10. For reasons connected with the insistence that only members of trade unions or professional associations may belong to the Consultative Committees.

The result seems to have been to throw the administrative and senior nursing staff into indirect competition with each other for control of certain aspects of the hospital's work. While the administrative staff have on their side the formal rights conferred on them by the Group, the nursing administration have the weight of voluntary hospital tradition and considerable informal influence.

Ordinary staff members find themselves in a position in which, though formally responsible to one line of authority, they are in practice incorporated in another. Sometimes this accords completely with their wishes. In other cases, staff members know that their formal line of authority lies one way, but feel unable to give outright refusals to claims made upon them by the other. Relatively few problems would arise if the only force at work was the nursing administration's attempt to exercise power they no longer have. An important and, perhaps, the crucial contribution to the present position is that it is in accordance with the accepted practices of the hospital and part of the established expectations of the staff that the Matron and her assistants will have such authority. As an eminent writer has pointed out, "The decision as to whether an order has authority or not lies with the person to whom it is addressed and does not reside in 'persons of authority' who issue the orders" (2). The individual who is required to execute an order is the one who decides whether it will be obeyed.

Apart from the problems associated with the divergence between the values and expectations of the older system and the formal requirements of the new, others arise, as in A, out of uncertainty as to the distribution of responsibilities. A member of the nursing staff projected on to the investigator her own doubts about the workings of the new system within the hospital. "You must find it confusing," she said, "seeing everyone doing bits and must see the running of the place as a bit of a muddle."

Reactions towards the New System

Many of the reactions of Hospital B centre on the application to them of principles familiar to A even before the Appointed Day. Voluntary hospitals have, in the past, prided themselves on the absence from their procedures of what they describe as the public-hospital system of "doing things by numbers", "going by the book". The personal touch was facilitated both by the relative smallness of their hospital and by their independence of outside authority. The staff of Hospital B are now involved in a system that, they feel, forces them in the same direction as hospitals like A, and are members of a social structure with characteristics other than those they bargained for in taking up hospital work. In their opinion, the domination of the Group by former Local Authority hospital staff leads to hostility towards them, directed, in particular, against their attempts to preserve their own traditions and individuality.

It is claimed that there has been a violation of the promise to the hospital

that their internal administration would not be tampered with. In practice, it is said, one infringement of this principle occurs after another—they are told what records to keep, how to keep them, whom they are to employ, and how much to pay them.

An outstanding complaint by the hospital concerns the complexity of present organization and the consequent slowness of decision-taking. It is said that too many people are involved in each decision. The feeling that the hospital has lost freedom and flexibility in its affairs runs through many quarters. The present system is alleged to involve a lack of recognition of the individual and the substitution of a mechanical for a human approach to staff problems.

HOSPITAL C—A MENTAL HOSPITAL

C is the newest of the hospitals included in the study. It is also the largest, having over 2,000 beds. Until the Appointed Day, C, like most other mental hospitals, operated under the auspices of a Local Authority, which had under its control several other hospitals, both mental and general. C was administered until 1938 by a Visiting Committee, consisting of a nucleus of Councillors from the Local Authority and a number of coopted members. While it drew its funds from the Local Authority and presented reports to it, this Committee had a great deal of independence from the Local Authority, part of its autonomy deriving from statutory powers with regard to visitation to patients and discharges from the institution, conferred on mental hospitals under various Mental Health Acts. The Committee also had the power to appoint staff, arrange salaries, enter into contracts for supplies, and conduct much of the hospital's business.

This Visiting Committee remained in existence until 1938, in which year it was abolished by special Act of Parliament and the authority vested in the Local Authority. The Local Authority appointed a standing Mental Health Committee responsible for all mental hospitals and mental deficiency institutions in its area, and visiting sub-committees of this standing committee were established to deal with particular hospitals. These met monthly at the premises of each hospital.

Meetings of both the Visiting Committee, at the hospital, and of the Mental Health Committee, at Local Authority headquarters, were attended by the Medical Superintendent as full-time head of the hospital.

At the Appointed Day, the Mental Health Services of the country were brought within the N.H.S. into one combined system with general hospitals. Each R.H.B. set up its own Mental Health Committee and appointed a Regional Psychiatrist as adviser on Mental Health questions. As in the case of general hospitals, local administration of mental hospitals was put into the hands of H.M.Cs. These dealt either with a few hospitals, or, in the case of large hospitals such as C, with one hospital only. The Mental Hospital H.M.Cs. added to the functions of general hospital H.M.Cs. the

special statutory responsibilities of the former Visiting Committees, including visitation and important duties relating to the discharge of certified patients.

The C Hospital Management Committee consists of twelve members, appointed by the R.H.B. and representing a variety of occupations. None of the doctors on the staff of the hospital are members.[11]

H.M.C. members decided that their business could best be attended to if all members were also members of all standing sub-committees, and could accordingly attend any sub-committee at their will. One day in every month is devoted to committee meetings. The sub-committees meet in the morning and present recommendations to the full H.M.C. in the afternoon. The standing committees are a Statutory Sub-Committee, Finance and Establishments, Works, and Farm and Garden. So far as the business side of the hospital is concerned, Finance and Establishments is the most important. The Statutory Sub-Committee is especially important to patients, since members are required to see all parts of the hospital once in two months and all temporary patients within one month of admission. The C H.M.C. has not appointed a standing Medical Advisory Committee.

The C H.M.C. has wider legal power than the A H.M.C. and more beds under its control. These beds are, however, concentrated within one hospital, greatly simplifying the tasks involved. There is, therefore, no special House Committee and no separate administrative staff, the hospital's own administrative staff combining administrative work of the H.M.C. with the ordinary duties of conducting the internal business affairs of the hospital.

The combination of these functions by the administrative staff of the hospital means that the only outside administrative staff with which the hospital is concerned is that of the R.H.B. There is not, however, the same intimacy of contact between a Regional Board and a Mental Hospital H.M.C. as between the H.M.C. of a group of general hospitals and the staff of those hospitals. The position of C in regard to outside administrative authority is therefore quite dissimilar from that of either of the other hospitals we have studied. The severance of the relationship with the local authority has not, as in the case of A, involved the substitution of a level of alternative administrative authorities closer to the hospital. Nor has nationalization involved for C, as it has for B, an initial introduction to a system involving responsibilities to external authorities. The medical and lay administrative staff of the hospital have a great deal of the powers over their own affairs that their colleagues at B feel they have lost to the staff of their H.M.C., and that their colleagues at A have never had under either system. Of the three hospitals, they have gained most in this respect, for they have, if anything, increased in autonomy.

11. It was mentioned earlier that the A H.M.C. includes doctors from the group of hospitals it administers, but it is not necessarily true that the hospital doctors at C therefore have less influence. In this type of situation, one or two votes at a Committee may carry less weight than the professional advice that must to a large extent guide Committee decisions.

Relations with Committee Members

Committee members are able to maintain close contact with the various departments of the hospital and have a similar level of acquaintance with hospital affairs as the House Committee members of Hospitals A and B. They have only one unit to administer, all of whose services are concentrated in a relatively small area. Their information comes direct from hospital administrative staff, since there is no Group staff in between. The Statutory Sub-Committee has an obligation to pay periodic visits to all patients, which takes Committee members regularly to all wards in the hospital.

Hospital staff have a better opportunity than in A and B to see their committee members and get to know some of them personally. It is difficult, however, despite the other favourable circumstances, for regular contact to be maintained between the 12 committee members and the 700 staff members, or to ensure that equal opportunities exist for all departmental heads to have direct access to committee members. The heads of a variety of departments are eager to have for their particular sections special advantages, which the hospital has secured on a more generalized level, from the closer access to authority under the new administrative set-up.

This applies with special significance to senior medical staff. Modern developments in the hospitalization of psychiatric patients have emphasized the importance of the whole social organization and atmosphere of the hospital for treatment, and doctors are anxious to keep before the attention of the Committee the relevance of all administrative decisions and practices to the patients' condition and progress.

Relationships with the Hospital

Like his colleague at Hospital B, the Medical Superintendent at C was, at the Appointed Day, the head of his hospital, with full responsibility for its services. In his case, however, many of his powers derived from the special statutory obligations of those in charge of mental patients, designed mainly to protect the liberty of the subject and to safeguard the rights of the individual patient within the hospital. Mental hospitals are bound by statutory rules regulating, *inter alia*, procedure regarding admission, the keeping of records, discharges, and the contracts into which voluntary patients enter on their admission to hospital; and the Medical Superintendent has to see that these rules are properly adhered to. Instruments promulgated under the N.H.S. Act preserve the existing arrangement, reasserting the position of Medical Superintendents as the chief officers of hospitals and leaving them with their statutory responsibilities.

The major change, so far as the chief officers of Hospital C are concerned, has been the appointment of the former Clerk and Steward to the important new post of Secretary to the H.M.C., a post which he combines with duties that he formerly performed. This officer has in his added capacity thereby become, in a sense, the representative of the body to which the Medical

Superintendent is immediately responsible for the administration of the hospital. In his capacity as Hospital Secretary, however, he is responsible for the proper execution of his duties to the Medical Superintendent, as administrative head of the hospital. So in this sphere problems arising out of the division of labour and authority between Medical Superintendent and Hospital Secretary in Hospital A are avoided in C. At the same time, this rather curious administrative situation and the absence of definite rules concerning the relative status of the Medical Superintendent and the H.M.C. Secretary of a mental hospital could create considerable difficulty where the two individuals concerned did not see eye to eye or where they did not, as they do in C, work harmoniously together.

In Hospital C, the Secretary has not added to his internal administrative functions, which are, as they have always been, those delegated to him by the Medical Superintendent. At the same time, his new proximity to the H.M.C., in his capacity as Group Secretary, has given him added influence over most of the staff of the hospital. While all in the hospital have been brought closer to their managing authority, he, as they are aware, is in a key position between the two.

While all departments are affected, the special significance of this situation lies in the relationship of the Secretary and his colleagues with senior medical staff other than the Medical Superintendent. The administrative staff are better placed than the doctors to be informed about higher-level policies and decisions. It is difficult to lay down an agreed division of labour between lay and medical staff, in view of the administrative responsibilities of the former and the standpoint of the psychiatrists that the whole social structure of the hospital, as an important therapeutic instrument, falls within their province.

Reactions towards the New System

It is felt within C that the new system has brought improved provision for mental hospitals, mental health having been brought more to public attention and receiving a more appropriate share of national resources. Such criticisms as are made relate far less to the preferability of the system superseded by the national scheme than to further improvements in the present service.

The point is frequently made by the staff that there is still insufficient recognition of the difference in the needs and circumstances of a mental hospital from those of a general hospital.

It is felt that insufficient recognition is given to the fact that a large proportion of the nursing staff of a mental hospital consists of men. It is held by male nurses that their rewards continue to be unduly affected by the vocational emphasis of the female nurses who predominate so far as the national service is concerned. "I am not," said a male nurse, "Florence Nightingale going around with a little lamp, but a man who looks at his wages, his house, his wife and family."

III.—CONCLUSIONS

The field study, undertaken a few years after nationalization, showed very clearly that such drastic administrative change as the hospital service has experienced demands some painful readjustments.

1. A variety of formal rules have been changed without corresponding adjustments occurring in the internal social structure and in the whole "culture" of the hospital. Formal rules govern only a small proportion of working-group behaviour. A whole body of informal relationships, traditions, and values remains out of gear with formal arrangements.

2. Change is, as such, unsettling, and the anxieties provoked by change require alleviation during the course of the transformation. Until then, the anxiety is expressed in mutual antagonism and in hostility towards the individuals who act as agents of change. The lay administrators especially, as agents of imposed change, have become recipients of hostilities having their origin in the change, but easier to direct against human beings than impersonal systems. There has also been a real shift of power. The administrators are now better informed than many of the doctors about higher-level policies and decisions, which greatly increases their influence. In the light of their past relations the temptation is, moreover, irresistible to the administrators to develop a mystique of their own, countering that of the doctor and equally able to discomfort him. Irrespective of their own personal characteristics, the individuals in the situation and the incumbents of the newly established roles find themselves involved in difficulties with each other. "I kept my head," remarked a Catering Officer, with considerable insight, "by remembering that it was the Catering Officer and not myself who was being shot at."

3. The field study demonstrated the unity of the sociological and psychological life of any organization. Nearly every change we have described seems to have its implications for many roles and people other than those directly involved.

4. One of the outstanding impressions left by the research concerns the manner in which individuals or groups affected or threatened by changes give them meanings quite foreign to those intended. All administrative acts are also communications, and the meaning extracted from a communication, formal or informal, is largely a function of the relationship between the parties concerned. The individual, as Cook (3) has said, "is not a bin into which facts are poured . . . What is communicated is restructured according to the angle, scope and point of view of the recipient as an active agent in a process". New differences in pay, for instance, have often been interpreted to mean a reassessment of the social value of the services of each occupational group and of the importance of the individuals concerned. Since society is in the hospital just as the hospital is in society, the hospital worker inevitably regards a change in his rewards and status relative to those of his

colleagues as a slight (or a tribute) to the whole social class or grouping of which he considers himself part.

5. Quite unconsciously, staff may also transform or add to the functions of innovation, sometimes converting them to purposes irrelevant or contrary to those for which they have been designed. We have mentioned earlier that barriers are set up by the hospital worker as an unconscious defence against anxiety. Elements from reality can always be selected from the environment to help the individual reinforce his defences. Assumption by the community of greater responsibility for sickness has imposed new burdens upon the hospital worker. Whoever does the planning, it is the hospital worker who must in the last resort decide priorities of need. This must strengthen his need for protection from over-involvement with the patient. What better supports to lean upon than the "lesser" rights attaching to free treatment, the confusion attendant on administrative changes, and the diffusion of responsibility to a point where it can be claimed that no one person or group has final responsibility for the patient?

The principle that administrative practices may be used to express or justify the needs of the members of the work organization rather than to implement original plans is further illustrated by the variability in the uses to which they are put in different contexts. The consultative machinery was used at Hospital A to preserve the picture of the antagonistic, exploiting boss constantly refusing demands, and at Hospital B to show an internal unity and capacity for independence.

6. The study of attitudes following a drastic administrative change highlights the fact that an attitude is not an isolated attribute of a person, capable of indentification and isolation like a cherry on a bunch. It is interdependent with other attitudes, theories, and feelings and forms part of an individual's total "front", serving to justify his behaviour and outlook and to protect him from criticism, guilt, and anxiety. It is functional for him. There is little doubt that the widespread tendency to ignore the positive achievements of the new hospital service and to focus attention on its shortcomings served to protect the staff members against what they experienced as a new vulnerability to criticism of themselves. Pointing in the same direction was the commonly expressed opinion that it is a waste of time to suggest changes in the new system since all the rules are imposed from above.

Adorno and others (1) have elaborated in recent years the idea that specific ideologies are attached to specific personality types. The hospital study illustrates that specific ideologies also attach to roles. Each role studied carried with it an ideology limiting the obligations and responsibility of the incumbent and legitimizing his behaviour. Amusingly indicative of this was the consistent tendency of informants to complain that their superiors did not trust enough to their discretion, while they themselves could not trust much to their subordinates because of the limitations of their competence.

Specific and highly functional ideologies also attach to total social

structures. In this case the ideology works not only as a defence against criticism but also to unify members of the group. A complex and dynamic relationship exists between the ideology attached to a single role or individual and that attached to a whole structure. In Hospital A, the worker-management issue seemed to transcend the organizational need for solidarity. In Hospital B, the solidarity of the whole working unit took precedence over individual needs in dealings with the rest of the Hospital Group.

7. Some of the present problems of hospital administration in Britain are undoubtedly connected with the largeness of scale of the organization in which the working units are now involved. Large-scale organizations involve centralization of communication and decision-taking and uniformity in the treatment of similar personnel and similar issues; there is a high degree of specialization, with a concomitant need—not always met—for the services of the high-grade administrator to coordinate the multiple specialities. As we saw in the case of the group officials and hospital professional staff in A, tension develops between the non-expert administrator with general competence and the expert, specialist subordinate (4). At present levels of administrative know-how, a price is often paid for the greater theoretical efficiency of large-scale organization in a deficiency of personal satisfactions among those individuals whose place is in the working units at the periphery of the organization. This is not, of course, inevitable; the morale of an organization depends at least as much on chosen patterns of administration as on overall size. But what is extremely difficult to combat without detailed (and perhaps almost superhuman) forethought is the abrupt loss of satisfaction or heightening of anxiety that occur when small units are absorbed by big. Hospital B is a classic illustration.

8. Where such an increase in scale takes place, it is clear also that many of the key roles change in such a way that they require different types of personality in their incumbents. With the alteration in responsibilities right down the administrative line, a more dependent and passive type of person is now wanted in one place, and a more independent and aggressive type in another. A large organization usually provides niches for many personality types, but difficulties in the fit of role and personality must occur in the short term while scale increases and a concomitant redistribution of authority and responsibility takes place.

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BIOGRAPHICAL NOTE

Cyril Sofer graduated at the University of Cape Town, and has been on the staff of that University and of the University of the Witwatersrand. He did graduate work at the London School of Economics. He has been on the staff of the East African Institute of Social Research, Makerere College, Uganda, and of the Acton Society Trust, London. His main interests are in the sociology and social psychology of working group behaviour. He is now on the staff of the Tavistock Institute of Human Relations, working in the field of selection and training for management.

THE ASSESSMENT OF COMMUNICATION

Perception and Transmission as a Function of the Social Situation[1]

JACK BLOCK AND LILLIAN BENNETT

The present paper reports on the "consensual accuracy" of an individual's social perceptions and communications and how this accuracy varies as a function of the interpersonal situation. It is an extension and continuation of a previous study (1), which demonstrated how an individual's perception of his own interactions is dependent on the behavorial context in which these perceptions are made. Both studies utilized a method for the assessment of communication in individuals and groups, which we have elsewhere described in detail (4).

By "consensual accuracy" is meant the extent to which an individual's appraisal of his various two-person social situations coincides with the evaluation of the same situation by the other participating individuals. If, in general, an individual agrees well with a large and representative number of other individuals in his definition of their mutual interactions, he is consensually accurate. If, in general, he does not agree with other individuals in their mutual descriptions, he is defined as consensually inaccurate. The notion of consensual accuracy is inadequate in those instances where there is an insufficient number of other individuals stably to define the social reality or where a striking group-contagion effect exists, in which case the individual may well be considered more reality-oriented than the group. But as a first approximation, the social consensus can be taken as the criterion of the social reality.

Interpersonal communication may be considered to have two aspects:

1. *Receiving or Perceiving*—where the individual attempts to understand and organize the complex of messages, explicit and implicit, that another

1. This third study under a common title is part of a long-term research project on communication carried out at the Division of Psychiatry, University of California School of Medicine, and The Langley Porter Clinic, San Francisco, California, under the direction of Dr. Jurgen Ruesch. This investigation was supported in part by a research grant (M-534) from The National Institute of Mental Health of the National Institutes of Health, Public Health Service.

individual is conveying. Misperception or distortion occurs when the "decoding" system of the receiver is not keyed to the "coding" system of the sender.

2. *Sending or Transmission*—where the individual is trying to convey some message, verbally or nonverbally, by explicit means or by capitalizing on the expectancies of the receiver. Incorrect or inadequate sending occurs when the encoding system of the sender is inappropriate for the "normal" receiver.

From the distinction between sending and receiving, it follows that an individual may be effective in both sending and receiving, ineffective in both capacities, an effective perceiver but a poor sender, or an effective sender but a poor receiver.

Granting that an individual varies his roles, a number of questions may be asked. How much does an individual distort in each of his roles, and what is the nature of this social distortion arising in his characteristic interactions? Does the nature of the distortion give us information about the roles he assigns to others as well as those he assumes himself? Does the individual tend to be more correct in his evaluation of certain of his interactions than in others? The present study is oriented toward an answer to these questions with reference to a specific individual.

METHOD

The subject (S), a 34-year-old female clinical psychologist employed in a mental hygiene clinic, described, by means of a series of *a posteriori* Q-sorts (5), her interactions with twenty-three individuals with whom she has personally relevant relationships. The various interactions were described retrospectively and introspectively by our S, using a set of one hundred Q-statements. These Q-statements had been previously constructed and designed to encompass a wide range of the behaviors and attitudes characterizing two-person interaction.

Each of the 100 statements was typed on a card; the cards were shuffled and given to S with instructions to sort them into nine categories containing 2, 5, 12, 19, 24, 19, 12, 5, and 2 statements respectively. S was to place the statements most characteristic of herself *while with X* at one end of the continuum, and those least characteristic of herself *while with X* at the opposite end. Each of the statements received a score of from 1 to 9, depending upon the category in which the card had been placed.

It was possible to see individually twenty-one of the "relevant others" and to have them describe in turn their interactions with our central S as they viewed the interaction. Each individual's description of an interaction consisted of two Q-sorts; one describing how the sorter interacts with the designated other (the I-Him set), and the second describing how the designated other interacts with the sorter (the He-Me set). Thus, for twenty-

one of the twenty-three interactions our S described, there were available descriptions of the same interaction as viewed by the other individual involved. Since the Q-sorts are all in comparable terms, it is possible to correlate any desired pair of Q-descriptions.

The twenty-three interactions described by our S were selected as encompassing most of the variety of behaviors our relatively complex and role-versatile subject could be expected to manifest. The "relevant others" were relatives, friends, neighbors, professional associates, and patients of S. The professional associates included statused others, secretaries, and peers working with S in the clinic. The professional peers represented rather mixed roles, since they also mixed socially with S on the "outside". S also described herself as she "interacts" with herself. This last "relevant other" represents an attempt to include in the social matrix a representation of S's self-percept.

The S's sorts of the "I-Him" set express her evaluations of her various interactions and are taken as defining her subjective reality: as describing her interpersonal situations as she structures and reacts to them. We shall later have occasion to relate these subjective evaluations to the evaluations of the same situations by the other participants involved.

The twenty-three "I-Him" sorts by the S were intercorrelated by the product-moment procedure and the resulting matrix of correlations was factor-analysed by the Thurstone centroid method.

The purpose of the factor analysis was to group empirically rather than from an *a priori* basis the relevant others with whom our S manifested different roles. Rather than positing certain individuals as "statused", the factor analysis discerns who indeed is reacted to by our S as having status, and so on. Having established the perceived social distinctions and stratifications of our S, it then becomes feasible to investigate the extent and nature of agreement and disagreement with these various "kinds" of relevant others in their respective appraisals of the interactions involved.

Seven factors were extracted before McNemar's criterion (3) for the cessation of factoring was reached. Factors were rotated toward a criterion of simple structure.[2, 3]

RESULTS

The Factor Analysis

Brief descriptions of the factors or kinds of roles derived for our S follow. The factors are defined and interpreted by noting the individuals highly loaded on the factor and by constructing a Q-sort that is a best-weighted

2. In order to reduce printing-costs, the correlation matrix and the resulting factor matrices are not presented here. They are not required for the purposes of the paper, since the factor analysis serves only the purpose of stratifying the social structure that our S perceives.

3. We are indebted to Dr. Betty Kalis for participating in much of the statistical analysis.

representative of the factor. By contrasting the various factor Q-sorts, the items characterizing each role become apparent. The method has been indicated in the previous paper (1).

The Friendship Factor. The role behavior defined by the Friendship Factor is expressed with close friends and neighbors. Dr. Smith,[4] a next-door neighbor, Mr. and Mrs. Taylor, who live nearby, and Miss Jones, who lives with S, are all highly loaded on the factor. The differentiating items indicate that S feels at ease with these people, trusts and confides in them, and likes them very much. She tries to please, to win their affection, and to impress them.

The Professional Status Factor. This factor is manifested with professionally statused associates. Dr. Ford, chief of the Department in which S works, Dr. Ellis, psychiatrist-consultant, and Dr. Burns, psychologist-consultant, exemplify that group of persons with whom S assumes this guarded role. With these people, S feels extremely uneasy, inhibited, awkward, and inadequate. She resents them, feels guilty, and tries to hide her feelings. She is self-abasing and enforces interpersonal distance. The ambivalence of her feelings in this role is marked—although she likes these people, she also dislikes them with equal intensity.

The Intimacy Factor. This factor is primarily defined by S's cognizance of her feelings, attitudes, and behavior towards her divorced husband, her mother, and herself. These people are very important to her and she treats them differently from others. Ambivalence is an important feature of her feelings. She is critical, unkind, inconsistent, and impatient. She gives them advice and thinks that she influences them.

The Therapy Factor. This factor is defined almost exclusively by S's description of herself with the two patients included in the matrix. The items characterizing S in this context indicate that she is quite aware of the therapist role. She tries to influence and help her patients and believes that she succeeds, although not to the degree of her efforts. She subordinates her own needs—does not confide, attempt to gain sympathy, or win affection, but still tries to impress. She feels at ease with her patients, although not as much as she does with her friends.

The remaining three factors do not have the simple coherence and interpretability of the first four factors and are, of course, defined by much lower factor-loadings. We shall not consider them here, since our primary purpose is to evaluate the social perception of our S as they contrast with those of the relevant others.

4. All names used are fictitious.

Consensual Accuracy as a Function of the Individual's Role

In answering the question: Does our S agree more with certain individuals than with others in their respective evaluations of mutual interactions? our data make it feasible to compare only the interactions encompassed by the Friendship and Professional Factors. Not enough individuals were loaded on the Intimacy or Therapy Factors to permit statistical comparison.

For the Friendship Factor, the correlations between our S's self-description and the descriptions of her by the six individuals defining this factor are: ·66, ·64, ·60, ·57, ·52, and ·37. For the Professional Factor, the correlations between S's self-description and the descriptions of her by the six individuals best defining the factor are: ·46, ·44, ·43, ·26, ·24, and ·22. Applying a non-parametric test of significance (6), we find that the difference between the correlations associated with the Friendship Factor and those associated with the Professional Factor is significant at the ·02 level of confidence.

When S's descriptions of the others associated with the Friendship and Professional Factors are correlated with their descriptions of themselves, equivalent results are obtained. The correlations subsumed under the Friendship Factor are: ·70, ·67, ·51, ·47, ·42, and ·34. For the Professional Factor, the equivalent correlations are: ·43, ·42, ·32, ·30, ·29, and ·26. The difference between the two sets of correlations is again significant at the ·02 level of confidence.

At a non-chance level, it would appear that in the company of friends with whom she feels at ease, our S and these people agree fairly well as to the nature of their mutual interactions. In the presence of her statused professional associates (and, to some degree, her professional peers), our S's evaluation of the interaction is considerably different from those of the other participants. Her consensual accuracy does seem to vary as a function of these two interactional contexts.

S's View of Herself Compared with Others' View of S. Interesting discrepancies appear when we compare the Q-sort representing S's description of herself in a given role with the Q-sort composited from the sorts of those individuals with whom she manifests this role.

The professionally statused persons perceive that S feels inhibited, resentful, and guilty, but not to the extent that S says she does. If we refer back to the description of this factor, we can see that S is only partially successful in trying to hide her feelings. Contrary to S's contention that she likes these people, they feel that she does not. They find her somewhat tiring and depressing to be with, whereas she does not recognize this. On the other hand, they regard her as less interruptive and exploitive than she thinks she is. Thus it is seen that S does not accurately perceive her own social-stimulus value—her hostile, aggressive, and exhibitionistic behavior in particular.

When we compare the Q-sort describing how S sees herself with her

friends with a composite reflecting how they see her with them, interesting discrepancies again occur. While S's friends are in accord with her in most of her statements characterizing this factor, they do not feel that she tries to impress them to the extent that she thinks she does. They feel she is helpful to them, whereas she is uncertain whether she is or not. They consider her more self-belittling than she recognizes, and more monopolizing of conversations. Neither S nor her friends feel that she gets angry or even annoyed with them, but S is more vehement in asserting this than they are. On the other hand, S's friends assert more strongly than she does that she neither bores nor offends them. Thus it is apparent that, although S is seen as more expansive with her friends than with her professional associates, she still inaccurately perceives her social impact in this context. Her social distortions with her friends are of less magnitude and of a somewhat different quality. Again, she evaluates her own aggressiveness incorrectly, tending either to overestimate or to underestimate it. Again, she does not perceive her ability to influence others, this time in a constructive way.

It is of interest to compare, in this manner, the Q-sort of S as she sees herself interacting with her patients with the Q-sort composited to reflect their perceptions of her. Her patients feel she is more helpful and influential with them than she feels she is, and they disagree with her statement that she tries to impress them. Although they agree with her that she likes them, they feel that she also dislikes them, whereas she feels that she does not. She feels that she is not particularly subtle, while they feel she is extremely so. While S, supposedly for therapeutic reasons, tries to make her patients feel uncomfortable, they do not perceive this. An interpretation of these discrepancies is not warranted since the fact of the therapeutic relationship greatly complicates matters.

The only individual loaded heavily on S's Intimacy Factor who did reciprocal sorts of S was her divorced husband. Comparing his description of S with S's description of herself while with him provides a graphic account of the present status of their relationship. S's divorced husband does not perceive that he is important to S or that she treats him differently from other people. He feels less influenced by her than she thinks. S's vigorous statement of ambivalence—she likes him somewhat but she dislikes him a great deal more—is not apparent to him. He believes that she likes him a great deal, respects him, and is willing to express disagreements frankly. She does not affirm this. He regards her as considerate, trusting, encouraging. She contends she is not. She views herself as being unkind to him, accusing, dominating, discouraging, depressing, distant. He says she is not.

Since S does not state that she hides her feelings with him, we might conclude either that she does not have the hostile feelings she says she has or that he does not perceive her hostility. At any rate, the two pictures of the relationship are in striking contrast and demonstrate a breakdown of communication.

The Behavior of S's Significant Others, as Viewed by Themselves and as Viewed by S. In order to complete our picture of S's interactions, her description of the behavior of significant others must be contrasted with their descriptions of themselves while interacting with S.

When a Q-sort representing S's description of her statused professional associates is contrasted against their composite description of their behavior while with S, discrepancies are evidenced that go along with those previously indicated. S feels that they keep her at a distance, dominate, inhibit, try to deceive her, and silently disapprove. Their views of their behavior and attitudes towards her do not coincide with hers in this respect. On the other hand, she does not recognize that they are patient with her and try somewhat to please her.

S apparently assigns these people a powerful, manipulatory, threatening authority role, complementing her own view of herself as inadequate, helpless, and intimidated.

Comparing S's description of her friends with their description of themselves when with S, we find that they are more flexible and confiding and less provoking than S feels they are. S's friends admire her more than she recognizes. She, in turn, is more encouraged and reassured by them than they seem to know.

S's patients describe themselves as highly inconsistent, whereas S views their behavior as highly consistent. They consider themselves to be less inhibited and controlling and more flexible and expansive than S does. She feels that they try to impress her more than they acknowledge. Again, the therapist-patient context does not permit a straightforward interpretation. Several inferences suggest themselves. Perhaps S's patients, like many neurotic patients, do not recognize the extent of their rigidities. Or perhaps S finds the role of therapist conducive to the projection of her own rigidities.

A comparison of S's description of her ex-husband with his description of himself reaffirms their communicative schism. He asserts that with her he is at ease, frank, and trusting. She disagrees with these statements. She asserts that he is ambivalent, dislikes her a great deal, is somewhat submissive, treats her gingerly, and makes her feel uncomfortable. He has an opposite view. He is not sure whether or not he understands her. She states that he definitely does not.

DISCUSSION

Our results are based on the study of one individual and, strictly speaking, generalizations must be limited to the "population" investigated—namely our one subject. However, we feel that the findings demonstrate an important aspect of the interactions of *all* individuals. The "consensual accuracy" of an individual's social perceptions varies (and may vary widely) as a

function of the interactional context in which he finds himself. This fact has been relatively neglected in the past and points up again that behavior cannot be predicted by studies of personality structure *in vacuo*. "Traitology" continues to prosper in psychology, as witnessed by the plethora of "personality dimensions" that continue to be offered. But the hierarchical ordering of these dimensions and the ways in which they may be connected to particular contexts tend to be unspecified. A considerable advance in prediction will be achieved only when we begin to understand the relationships between personality and social situation.

Although this study has considered the accuracy of perception and transmission in the frame of reference defined by one individual, it is intriguing to consider a typology based on the perception-transmission distinction. Some preliminary work has indicated that it is possible reliably to classify individuals into one of the four categories—effective receiver, effective sender; effective receiver, ineffective sender; ineffective receiver, effective sender; ineffective receiver, ineffective sender. Impressionistic observation of these "kinds" of people indicates that certain personality correlates of this typology exist. We feel that it is important further to pursue this way of classifying individuals.

It may be noted that the method of reciprocal Q-sorting used here lends itself to the diagnosis of conflict and tension in interactions. Properly used, it may provide a basis for the plotting of a psycho-therapeutic strategy and offer an index of change in interpersonal relationships. Another article (2) will present a study illustrating this feature of the method.

SUMMARY

The present experiment studied the interactions of a single subject with twenty-three significant other people. The method of procedure was reciprocal Q-sorting, followed by a factor analysis. It was found that the roles manifested by the subject varied as a function of the people with whom she was interacting. It was also found that the amount of social distortion manifested by the subject varied as a function of the interactional context in which she found herself. Attention was called to the two kinds of interactional distortion that may exist—distortion at the perceptual or decoding level, where the individual does not receive the interpersonal messages being sent; and distortion at the transmission or encoding level, where the individual does not send the interpersonal messages he intends to send—i.e. he does not have the social stimulus value he is attempting to approximate.

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BIOGRAPHICAL NOTES

JACK BLOCK received his Ph.D. in 1950 from Stanford University. He has worked with Dr. Jurgen Ruesch at The Langley Porter Clinic in a research project on interpersonal communication. Currently he is a research psychologist at the Institute of Personality Assessment and Research in Berkeley. His major interests are in the fields of personality, clinical, and social psychology.

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GROUP COHESIVENESS AND THE EXPRESSION OF HOSTILITY

ALBERT PEPITONE AND GEORGE REICHLING [1]

The field of interpersonal and intergroup hostility embraces several interlocked problem areas. There is, for example, the question of the conditions giving rise to hostility in the individual or group—the factors, in other words, that determine the hostile impulse. There is also the question—given the hostile impulse—of the conditions that govern the direction and quantity of its overt expression. A third question concerns the "fate" of the hostile impulse, particularly in relation to expression or lack of it. The phenomenon of "catharsis" illustrates this phase of the problem.

The present study is principally relevant to the problem of hostility expression. In particular, the experiment is concerned with the effect of group cohesiveness—as empirically defined in terms of the mutual attraction of members—upon the volume and direction of expressed hostility. The most pertinent data on this problem stem from an experiment by Wright (5). This investigator frustrated the play activity of paired children between three and six years of age, who had been previously classified by their nursery school teacher as being Strong or Weak friends. The observed behavior of these children under conditions of frustration showed that the pairs of Strong friends expressed more aggression than the pairs of Weak friends, and that such aggression involved a greater incidence of physical attacks against the experimenter, e.g. kicking, biting.

If it is assumed that the two children in their play activity during the experiment constituted a group, and if preexisting friendship affected *only* the cohesiveness of this group, we may propose a formulation that is suggested by the data and that seems well in line with everyday observation: Members of cohesive groups provide each other with strength and support, which enables them to overcome internal and external restraints against retaliation in the event of attack. Highly cohesive groups, in other words, will be less restrained when under attack than relatively less cohesive groups.

1. The authors are indebted to W. Wallace and E. Galanter of the Psychology Department who participated in the experiment as the Assistant and Instigator, respectively.

This greater ability of highly cohesive groups to reduce restraints will be reflected, we hypothesize, in a greater volume of expressed hostility and a more direct expression of hostility with respect to its source.

METHOD

Male volunteers were recruited from introductory psychology classes by an Assistant, who announced that a national organization was conducting an intensive survey of student attitudes toward various social and academic phases of campus life. The kinds of questions germane to the study were colorfully illustrated, and the fact that the Ss were to participate as a group was carefully explained. As an added incentive, it was indicated that several universities were participating in the survey and that a published copy of the comparative results would be furnished to all volunteers. Prospective Ss then indicated their free hours on a prepared form, and, for purposes of creating the cohesiveness variable, checked a list of assorted personality traits in accordance with: a. the type of person they thought they were, and b. the type of person with whom they would most like to work. A few additional questions bearing on their interest in school activities were also included on the form.

Ss recruited from *different* classes were paired and assigned at random to the High or Low Cohesiveness Conditions (Hico and Loco Groups). There were 13 groups in each condition. Upon being ushered into a conference room used for the experiment, the purposes of the survey were reviewed. Particular stress was placed upon the necessity for participation as a group. Then, in accordance with their designation as a Hico or Loco Group, the following treatments were given in a manner designed to maximize the effect of the formal content.

The Creation of Cohesiveness

Hico Treatment ". . . another factor in the selection of participants is that we try to get people who are basically compatible in their personalities, that is, who get along well together. We do this by matching people in terms of the traits *they* possess with the traits of people they like. You probably remember doing this on the application form. I must say that, in your case, we were able to make an exceptionally good matching, so you should make an exceptional team."

Loco Treatment ". . . another factor . . . (exactly the same as the Hico treatment) . . . Unfortunately, we weren't able to make a good matching in your case, so I'm afraid you won't get along very well together."

The foregoing procedure is virtually identical with that successfully employed by Back for the purpose of inducing differential levels of group cohesiveness (1).

Following the cohesiveness treatment, the Assistant told the Ss that the "discussion leader" would arrive immediately.

The Creation of Hostility

On the basis of pilot studies, a technique was evolved that successfully aroused mild to strong hostility in these groups. In essence, the procedure was to treat the groups in an unjust, arbitrary, and insulting manner. The exact procedure followed was based wholly upon a well-rehearsed script, which was acted out in as natural and convincing a manner as possible.[2]

Instigator. (Enters after a deliberate, three-minute delay. To Assistant.) "Hello." (Looks annoyed.) "I see these groups finally got here. Do you have their application forms?"

Assistant. "Yes, here they are."

Instigator. (Looks through forms.) "This is terrible. How did these people get here?"

Assistant. "The campus doesn't have much to offer."

Instigator. "I can see that." (To one of the Ss.) "What's your name?" (To other S.) "And yours is?" (To one S.) "How old are you?" (Sarcastically, before S answers.) "We don't want kids for this survey—we need mature adults." (To second S.) "What's your age?" (Disgustedly, after S responds.) "That's just fine! Do either of you take part in any activities?" (Aside to Assistant.) "These people won't have any idea what's going on around campus." (To one S.) "Do you ever go out with girls? How often?" (After response, cynically.) "Great!" (To other S.) "And you?" (Moans as answer is given.) (To apparently poorer-dressed S.) "Do you always come to appointments dressed like that?" (To Assistant.) "Well, let's see if we can use these groups anyway. I'll give them a sample question." (To one S.) "How do you feel about student-faculty relations on campus?" (S is cut off before completing the answer. To other S.) "How about you?" (After response.) "Well, that's a profound observation!" (To Assistant.) "I can't waste the Association's time and money on drivel like this. I can't give them lab credit." (Volunteers had been promised an excuse from one lab paper.) "You might check with Professor Jason (fictitious) to find out if he can use them. He'll use almost anyone." (Exit.)

To eliminate external restraints from the situation, the Instigator severs his formal connection with the group and leaves. However, so as not to terminate the proceedings altogether, the possible use of the group by another person is suggested. Finally, to block any interpretation of official, repressive action toward the "bad" group, the Instigator is described by the Assistant as having relatively low status:

Assistant. "By the way, that was one of the graduate students in the

2. Frequent checks by an independent observer indicated that the script was, in fact, being followed exactly as written.

department. These discussion groups are usually led by Professor Arnold Welch (fictitious), but he's attending a conference in New York today. I'll check with Professor Jason to find out if he can use you. I'll be back in about ten minutes."

There followed a "free" period of approximately six minutes, in which the groups were entirely alone. During this time, an observer in an adjacent room recorded various categories of motor and verbal behavior, which could be seen through a one-way-vision glass and heard through a sound-amplification system.

Observations

A schedule of observation categories was developed on the basis of pilot studies. Included were:

I. *Hostility*—all implicitly or explicitly negative statements directed toward: the Instigator, the treatment and procedures employed by the Instigator or the Assistant, psychology and psychologists, the physical setting. In addition, there was a sub-category of general suspicion, which included all negatively toned statements of doubt, mistrust, and inquiry, without reference to any particular target.

II. *Mutual Background*—all statements intended to enhance the Ss' knowledge about each other's "background", including interests, courses, and activities.

III. *Silence.*

IV. *Physical Gestures and Movements.*

The observations were made in terms of the number of seconds in which a statement occupied *one* of the above categories. The one exception was in the case of Physical Movements; here, word-descriptions were recorded. The categories were treated as mutually exclusive, i.e. there was no multiple coding. The Ss were not distinguished as individuals, since our major interest was focused on the group as a unit. For purposes of temporal analysis of the observed behavior, the schedule was divided into six sections of approximately one-minute duration.[3]

Questionnaire

At the end of the free period of observation, the Assistant reappeared. On an ambiguous pretext that additional information was needed by the "Association", a three-item questionnaire was administered. Each S recorded his response on a six-point rating scale.

3. Actually, adding the time it took the Assistant to walk from the "one-way" room to the conference room, the free period was for all groups somewhat over six minutes. In addition, the observer tended to overestimate the length of statements. Presumably, this error was constant for all groups.

1. Frankly, how much interest do you have in the proposed discussion? (Point 1, absolutely not interested; Point 6, extremely interested.)
2. What is your feeling toward Professor Welch (the Instigator's name was substituted here) as a discussion leader? (Point 1, would dislike him thoroughly; Point 6, would like him pretty much.)
3. How do you feel towards your partner? How well would you get along in prolonged discussions and many meetings? (Point 1, would dislike him thoroughly; Point 6, would like him pretty much.)

Group Interview

Some thirty seconds after the questionnaires had been collected, the Instigator entered the room and announced to the Ss that they had been participating in an experiment and that it was all over. He then proceeded with a brief interview designed to uncover unexpressed feelings that Ss had during the experiment as well as their present sentiments. Responses to the standard set of open-ended questions were recorded verbatim by the Observer.

At the conclusion of the interview, appropriate time was taken for a complete explanation of the purposes of the experiment. Before the Ss were dismissed, apologies were tendered and, happily, in all cases accepted.

RESULTS

The mean number of seconds of group behavior in the three observation categories employed during the free period are presented in *Table 1*.

TABLE 1 *MEAN SECONDS OF OBSERVED BEHAVIOR IN THE HICO AND LOCO GROUPS*

Behavior Category	*Hico Groups* N=13	*Loco Groups* N=13	$SE_{diff.}$	t
Hostility	95·7	43·6	19·7	2·64*
Mutual Background	145·6	179·0	37·7	0·89
Silence	75·7	105·5	29·0	1·03

* $p < .01$, one-tailed test

Table 1 shows that the only category significantly differentiating the Hico and Loco groups is that which reflects the amount of expressed hostility. The Hico groups, as predicted, release on the average more than twice as great a volume of hostility as the Loco groups. There is no significant difference between the experimental groups in the amount of mutual background behavior and in the time they were completely silent.

The three categories listed in *Table 1*, of course, did not exhaust the behavior that occurred during the free period. There were several other

forms of verbal behavior not recorded. Also, throughout the free period there were physical movements and gestures of various sorts. These were described by the Observer as they appeared. For example, there were instances of laughter, changing seats, smiling, finger-drumming, throwing legs on table, sighing, looking under table, walking around the room.

A comparison of the Hico and Loco groups with respect to the total frequency of these items reveals no difference. Further analysis, however, discloses a relevant finding. The Observer, the Assistant, and the Experimenter, with perfect agreement, sorted all the items into a dichotomy representing unrestrained and relatively restrained physical behavior.[4] For example, standing up, laughing, walking around the room were considered to be less inhibited behavior than smiling, drumming fingers, etc. The percentages of the total frequency of physical behavior thus characterized as relatively unrestrained are: 76 per cent for the Hico groups, and 47 per cent for the Loco groups. The difference, employing the standard error of P based upon the Hico and Loco groups combined, is significant at the ·04 level of confidence, considering both tails of the normal probability distribution. The finding that highly cohesive groups are relatively less restrained in their physical behavior appears to be coordinate with the finding that these groups release more hostility than the less cohesive groups.

The hostility released by the groups was usually directed toward particular targets within and outside the immediate experimental situation. *Table 2* indicates the amount of hostility expressed toward these precategorized objects of hostility included on the observation schedule.

TABLE 2 *MEAN SECONDS OF HOSTILITY EXPRESSED TOWARD SPECIFIED OBJECTS BY HICO AND LOCO GROUPS*

Objects of Hostility	*Hico Groups* N=13	*Loco Groups* N=13	$SE_{diff.}$	t
Instigator	55·7	11·5	11·6	3·81*
Treatment	24·2	7·5	8·0	2·09**
Psychology	3·8	8·8	4·4	1·14
Physical Setting	1·1	4·8	4·2	0·9
General Suspicion	10·9	10·6	7·0	0·04

* $p < ·001$, one-tailed test
** $p < ·03$, one-tailed test

It can be seen that, on the average, the Hico groups express significantly more hostility than the Loco groups toward the Instigator and toward the treatment accorded them by the Instigator and the Assistant. The groups do not differ in the hostility directed toward psychology, psychologists, and

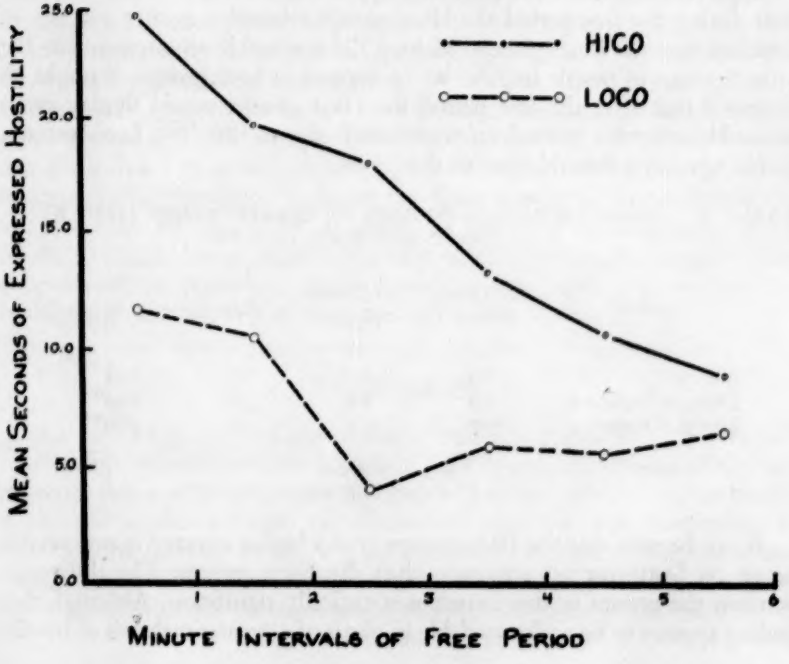
4. The classifying procedure, of course, was accomplished independently of the consideration as to whether the Hico and Loco groups showed differential frequencies.

various features of the physical situation. There is also no difference with respect to general, nondirected suspicion. This result confirms our second prediction regarding the directness with which hostility is expressed. Presumably, the Instigator, the treatment, or both constitute the sources of hostility. As such, expression of hostility toward these objects may be considered to be more directed than toward other objects.

Since these sub-categories representing objects of hostility are exhaustive with respect to the amount of hostility released, a comparison of the Hico and Loco groups in terms of absolute mean values may not be an accurate reflection of true differences. The proportion of the total hostility released by the Hico and Loco groups that is directed toward the Instigator and the treatment may be compared. Eighty-three per cent of the hostility released by the Hico groups is in the direction of the Instigator or the treatment, while in the Loco groups forty-four per cent takes the same direction. The difference between these percentages is significant at the ·03 level of confidence, considering both tails of the probability distribution.

Throughout the course of the free period the amount of hostility released by the groups fluctuated from moment to moment. *Figure 1* pictures the

FIGURE 1 *MEAN SECONDS OF HOSTILITY EXPRESSED DURING EACH MINUTE INTERVAL OF THE FREE PERIOD BY THE HICO AND LOCO GROUPS*



amount of hostility expressed by the average Hico and Loco groups during each one-minute interval of the free period.

The curves representing both Hico and Loco groups are higher at the beginning than at the end of the free period. For the Hico groups, the reduction in the amount of expressed hostility is very steady over the whole time span. The mean of the difference from the first interval to the last is significant ($t=4{\cdot}10$, $p<{\cdot}01$). The curve of the Loco groups begins with a slow decline, then drops sharply and significantly between the second and third minutes ($t=3{\cdot}08$, $p<{\cdot}01$). Thereafter, the curve is essentially flat at about the level of five seconds' hostility.

There are several hypotheses that might reasonably account for these curves. One possibility may be briefly indicated. It should be borne in mind that the curves in *Figure 1* represent a succession of averages and not necessarily theoretical functions.

The general diminution of expressed hostility is due to a reduction in the amount of hostility that is available for release. Hostility expressed during any interval leaves a lesser amount to be released during subsequent intervals of the free period. As for the Loco groups, it has already been shown that they are not able to release as much hostility as the Hico groups. When interpreted in a temporal sense this would imply that they more quickly exhaust the amount of hostility they can release than the Hico groups.

Apart from whether this particular hypothesis is correct, there is no doubt that during the free period the Hico groups released a greater amount of hostility than the Loco groups. Making the reasonable assumption that the same amount of hostile impulse was generated in both groups, it might be expected that after the free period the Hico groups would display more favorable attitudes toward environmental objects than the Loco groups. *Table 3* presents data relevant to this point.

TABLE 3 *MEAN RATINGS (Ss POOLED) ON QUESTIONNAIRE ITEMS BY HICO AND LOCO GROUPS*

Question	*Hico Groups* N=13	*Loco Groups* N=13	$SE_{diff.}$	t
Interest	8·4	9·1	·57	1·23
Liking of Instigator	6·8	6·2	·25	2·40*
Liking of Partner	11·7	10·2	·32	4·69**

* $p<{\cdot}02$, both tails
** $p<{\cdot}001$, both tails

It can be seen that the Hico groups give a higher average questionnaire rating on Instigator attractiveness than the Loco groups. The difference between the groups in this respect is statistically significant. Although this finding appears to be understandable in terms of a greater catharsis of hostile

impulses in the Hico groups, strictly speaking we cannot demonstrate catharsis without proof that the Loco groups did not become less favorably disposed toward the Instigator owing to their relatively low amount of expressed hostility.[5]

Table 3 also shows a significantly greater degree of mutual attraction between the Hico pairs of Ss than between the Loco pairs. This result presumably confirms the different cohesiveness treatments given to the two experimental groups. To interpret this finding as due, not to the original cohesiveness treatment, but only to the differential amount of hostility released by the two groups would be difficult. In fact, there are data showing that groups in which hostility remains relatively unexpressed tend to show an *increase* in cohesiveness, while groups that express relatively more hostility show no net change in cohesiveness (3).

There are no differences between the Hico and Loco groups in the degree of interest they had toward the proposed discussion. Such a motivational factor, therefore, cannot be used to explain the differential attitude toward the Instigator or the difference in cohesiveness.

When the Instigator informed the groups that they had been in an experiment and that they could relax, the Ss issued a variety of responses, which were recorded by the Observer. There were shouts of surprise, moans, hostile oaths, as well as stretches, smiles, etc. Although the Hico groups tended to make more of these "cathartic" responses than the Loco groups, the difference was not statistically significant. Further analysis, however, did reveal an interesting finding. It had been observed that in some groups the foregoing responses were made by both Ss, while in other groups, only one S responded—often in the manner of a spokesman—or there was no observable response at all. When the experimental groups are compared, we find that the number of groups in which *both* Ss respond occurs twice as often under the Hico condition as under the Loco condition. The difference is significant by chi-square test at about the ·06 level of confidence. This result, although based upon relatively small frequencies, suggests that cohesiveness, in providing group members with more mutual support, enables a greater number of them to express their feelings.

DISCUSSION

An increasing body of experimental evidence points to a close causal relationship between the cohesiveness of a group and the amount of mutual influence that is achieved among the members of that group (1, 2). In somewhat oversimplified terms, the theoretical basis for this relationship is essentially as follows: to the degree that, for whatever reason, members desire to remain in a given group, they will tend to originate and to accept

5. See (4) for a critical discussion of this problem.

pressures that are designed to preserve the group or to advance the group toward its goals. Thus, it may be said that the greater the cohesiveness of a group, the greater the power of that group to bring about change in its members. We propose a simple extension of this theory so that it may embrace phenomena other than influence pressures: The more cohesive the group, the greater the tendency for members to provide and accept support designed to overcome restraints that bar the removal of a threat to the group or that otherwise bar the locomotion of the group toward its goal. In other words, we may say that cohesiveness increases the group's "capacity" as well as its "power".

The foregoing general statement fits the results of the present experiment reasonably well. The members are attacked by the Instigator individually and collectively. They seek to remove this threat or at least retaliate against it. However, internal and perhaps external restraints tend to bar the expression of their hostility. The greater ability to reduce restraints assumed to characterize the Hico groups would account for the greater volume of hostility expressed, the greater directness with which hostility is expressed, and the apparently less restrained physical behavior.

SUMMARY

1. The purpose of this experiment was to test the hypothesis that High cohesive groups are able to express more hostility than Low cohesive groups and that the hostility expressed by High cohesive groups will be more direct than that expressed by Low cohesive groups. Results tend to confirm these predictions at acceptable levels of confidence.

2. The Hico groups' physical behavior tended to be less restrained than that of the Loco groups.

3. There was some evidence supporting the psychoanalytic concept of catharsis. Having released a greater amount of hostility during a free period, the Hico groups rated the Instigator more favorably than the Loco groups.

4. In line with the proposed effect of cohesiveness in terms of the provision and acceptance of mutual support, the number of groups in which both Ss showed cathartic responses was significantly greater under the Hico than under the Loco condition.

5. A general theoretical statement was offered to integrate the findings.

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BIOGRAPHICAL NOTE

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BOOK REVIEWS

The Makah Indians. Elizabeth Colson. Manchester, Manchester University Press, 1954. pp. 298, 28*s*.

Professor Colson has written an unusual book. Unlike most works on American Indians, it is not a reconstruction of the pre-white culture, it is not a study of Indian personality, and it is more than a study of culture contact. In the preface Professor Colson says:

> " When I originally went to Neah Bay, I was under the influence of an interest in culture and personality studies, which have occupied the attention of many American anthropologists during the last two decades. I hoped to collect a series of life histories from people of different generations but of the same family lines as a means of testing the hypothesis that basic orientations are resistant to change while cultural content changes much more rapidly. The struggle to understand the heterogeneous community at Neah Bay led to the formulation of quite other problems which had to be solved by an approach more comparable to that developed by British social anthropologists who have also been concerned to understand communities rather than cultures. My original presuppositions and field programme made it difficult to clarify the new formulations, and the original manuscript is therefore marked throughout by the struggle. It is my hope that the rewriting has eliminated the marks of struggle, and that this book will stand as a picture of a modern American Indian group faced with the problem of understanding its position within American society."

This aim has been achieved. The style is lucid, precise, and free from jargon. The economic, social, and cultural position of the Makah is revealed and interpreted. The author's interpretation is probably valid for other compact, economically solvent Indian tribes, and she has given us a sound basis for comparative studies of assimilation. And although she disclaims any interest in "culture and personality", she shows an admirable understanding of the psychological mechanisms used by the members of this small minority group.

The Makah form a small Indian community long established in the Cape Flattery area just south of Vancouver Island. In pre-white days they found an easy subsistence in fishing and they traded and fought extensively with other Northwest Coast tribes. In the 1860's the American government converted part of their territory into a reservation and began an attempt to Americanize them by a combination of education for children and direct control of the political and economic affairs of adults. In some respects the attempt has been successful. Many of the customary behaviours of the Makah are now indistinguishable from those of white Americans. To some extent, however, the government's policies have created the sort of community distinctiveness which they were designed to destroy. First, the Makah's status as wards of the government gives them special privileges which make it worth their while to remain Makah in Makah territory. Secondly, through fishing and lumbering the Makah have been able to maintain a decent standard of living by white standards, so that they can fit into the white economic system and yet keep their community identity at the same time.

Their distinctiveness as a community is shown by the fact that they treat one another differently from the way they treat whites, and from the way whites treat one another.

They feel the weight of obligation to assist their relatives up to the degree of third cousin, so that the immediate family is not so sharply set off from the extended family as it is amongst whites. This kinship solidarity is offset by rivalry between individuals to achieve wealth and social status. The two theories of kinship solidarity and individual rivalry balance each other and make it possible for the Makah to continue to exist as a group, but at the same time the conflict sometimes leads to an impasse. It is difficult for a Makah to act as a political leader or to set up a store, because his kin expect preferential treatment. It is difficult for the Makah to act effectively as a cooperative group in any long-term economic or political enterprise. Many Makah gave the impression that rivalry among them was so strong that they preferred the leadership or exploitation of whites to that of other Makah. The whole situation is acted out in the form of gossip; outsiders are excluded from such gossip so that participation in it is a badge of group membership, but at the same time the gossip sometimes disrupts the Makah community internally.

The Makah also have some religious beliefs which are not the same as those of whites. Many of them have kept their belief in the idea of "power", and even those who attend Christian churches expect their religious experience to give them some sort of power for curing or causing illness. Christian doctrine has been made compatible with Makah religious concepts.

The Makah are thus a minority group with a special status. In general, whites feel mild contempt for Indians and Indians feel resentment and righteous indignation toward whites. But on their reservation, the Makah have special economic and political privileges and they show little deference to the local white residents, little desire to leave the reservation permanently, and little desire to become completely like whites. The reservation system has thus prevented their complete assimilation into American society. Economic, political, and educational control has made the Makah take over much of the formal culture of whites, but they are still a separate group, and their separateness finds expression in some distinctive cultural premises, particularly in the fields of kinship and religion. These premises govern their relations with one another but not their relations with whites. The evidence suggests that these premises have not survived unchanged from pre-white times. Without fully realizing it, the Makah are constantly re-interpreting their traditions and their implicit cultural premises to fit the demands of their present economic and social situation.

Elizabeth Bott.

Appraising Personality. Molly Harrower. London, Routledge & Kegan Paul, 1953. pp. 185, 18*s*.

At the end of the book Dr. Harrower states that it has been written "on the assumption that there will be an increasing realization amongst all professional groups of the need to make available the important insights gained from their respective disciplines in concise and understandable terms.

"Inter-disciplinary, inter-professional communication, we believe is the direction in which the clinical psychologist can make an important contribution at the present time."

Although the book is written primarily for doctors, to illustrate to them the kind of question they can ask of the clinical psychologist in order to understand the patient better, it is directed more widely to social workers and educationists in the many fields where personality study is important.

The general principles and usefulness of clinical psychologists' skills are demonstrated most effectively. The theoretical basis of the methods is wisely avoided. Some clinical psychologists and psychiatrists may find the case presentations at the end of the book less satisfying than earlier chapters on the particular techniques, which include Rorschach, Wechsler, Drawing of the Human Figure, Szondi, and Sentence Completion. The inclusion of the Szondi test without mention of the peculiar difficulties and uncertainties which surround it is probably unwise.

The dialogue form adopted is handled with extraordinary skill and effectiveness. Rarely—perhaps only at first—does one feel talked down to; the reader is always an intelligent and (perhaps equally essentially) a tolerant reader. The expression is almost consistently "literary" in its fulness, sensitivity, and clarity. The few lapses when they do occur tend to jar. But, in spite of the high level of skill used in the dialogue it is likely that many of the uninformed or sceptical readers to whom the work is directed would be less resistant to a straight presentation with the same clear illustrations. The examples are chosen with an acute awareness of the professional and personal considerations at stake as well as for the clarity of demonstration which they lend themselves to with the aid of simple visual aids. Such clarity and surefootedness comes from extensive experience worked over in exacting training programmes such as M. Harrower has taken part in, e.g. in the U.S.A. Services.

To be critical: there is perhaps too little emphasis on the concern of the clinical psychologist to strive towards a more systematic and quantified assessment of the personality dynamics his techniques reveal—in contrast to the less standardized techniques of clinical interview. There is little mention of the importance of the clinical situation and relationships with the psychologist in obtaining and assessing the results from projective and other techniques: no raising of issues of "transference" when psychologist and psychologist work together. The sophisticated clinical psychologist who is very much in sympathy with M. Harrower's approach may thereby criticize the book on the grounds of over-simplification. The achievement is, however, so effective that for the sake of those readers for whom the book is primarily written these criticisms should not be pressed. More serious is the general impression that the use of these techniques is "too easy" and perhaps a little too certain in their results.

This book will be of considerable value and interest to general practitioners and physicians in hospitals. But the growth of interest here may be much slower than that from social workers, educationists, welfare workers in industry, prison services, etc. and of course psychiatrists in hospital appointments and in private practice.

For psychologists it will be of value to those about to enter the clinical specialty as well as to those who are already in the field. It not only demonstrates some of the clinical psychologist's skills, but it also gives important guidance and example on problems of communication with medical and other professional colleagues. In addition it raises questions relating to the direction of development of the profession, in the most effective way possible, i.e. by demonstration of skills and their practical usefulness.

For the informed reader it should prove helpful and instructive, and it should give reassurance rather than produce disturbance in the mind of the educated reader who is also a prospective patient.

H. Phillipson.

Living in Towns. Leo Kuper and others. London, Cresset Press, 1953. pp. 363, 21s.

This is a series of five studies by Leo Kuper and his associates of the University of Birmingham's Department of Commerce and Social Sciences. They seek to add to our understanding of sociological aspects of housing and planning. Kuper, working in close collaboration with the city officials of Coventry, provides the major study in the book —*Blueprint for Living Together.* Winifred Whitely presents a study of some aspects of the relationships between local village population and immigrant "overspill" from nearby industrial Birmingham. L. E. White, studying the outdoor play of children in Camberwell flats, treats another special aspect of urban housing problems. Janet Madge and Doris Rich, in their respective papers, provide workmanlike data on particular kinds of voluntary associations—viz. social mixing in Worcester, and spare-time activities in the Black Country.

Kuper's study gives the most extensive discussion of method, occupies over half the space of the book, and can be discussed as representative of the book as a whole. Kuper

makes intelligent and careful use of sociological concepts drawn from a variety of researchers, mostly Americans, of all vintages from Chapin to Festinger, Schachter, and Back. He seeks to tease out and describe in great detail some of the patterns of social life that emerge in a planned housing estate. The nature of these social relationships is found, of course, to relate in various ways to such factors as the physical proximity of households, homogeneity of attributes like status-alignment ("respectability" and "roughness"), and the presence or absence of occasions for contact that arise in the daily round of work, shopping, and leisure. Each of these factors is thoroughly explored, its relevance documented for this estate in Coventry, and comparisons made between the Coventry picture and that reported in research elsewhere. His recommendations are sensible and consistent with the kinds of pattern expressed by the residents in their interviews—such things as increased privacy, the provision for better opportunities for contact and the promotion of sociability, etc. Planners, to be sure, can allow and even stimulate many of these patterns by manipulating the physical housing situation according to architectural and arbitrary social criteria. For practical as well as ethical reasons, since "the social consequences of the plan depend finally on the residents", planners are urged to "shift the emphasis from the physical determinism of the expert bureaucratic plan to the activities of the residents themselves". It is on this point that Kuper ends his study—urging planners to include in their blue-prints some provision for allowing the residents to express their own wishes for patterning their social life. In so ending, Kuper indicates the way in which social scientists can contribute to the practical problems of urban planners. The rather pedestrian accumulation of reliable materials that Kuper and his associates bring together here not only contributes to the substantive needs of the planners, but bears on certain technical problems of survey sociology. His emphasis on intensive materials at this particular point in our knowledge is amply justified for indicating the complexities of data from which valid indices must be extracted through painstaking exploratory studies before the more extensive surveys of this field can be made.

While Kuper and his associates demonstrate a good level of professional craftsmanship, setting their study into a context of respectable sociological concepts and methods, their applied commitments make their work of less interest to theoretically oriented sociologists outside the field of housing. Their initial research formulations were not framed in terms that could have allowed theoretical questions to receive as much illumination as practical questions in this research. These studies may, however, serve as baselines against which Kuper or others using this material may make a further analysis of the raw data that could shed light on such problems of theoretical interest as the relationship between certain patterns of a family's external connections and characteristics of the family organization. Furthermore, Kuper and his associates, while examining and diligently applying selective aspects of social theory to an applied problem, are apparently not critically aware of some of the assumptions on which their research is based. For example, any study that explicitly seeks to relate architectural situations with interaction patterns ought to give some attention to the question of whether similar patterns might not exist for people of this class and region in other kinds of architectural situations, perhaps even the ones from which this intrusive population has come. A study of the patterns of interaction typical of samples of residents drawn to represent different lengths of residence within a housing development might throw some light on the question of what period of time is necessary under various circumstances for the interaction patterns typical of that situation to develop and crystallize.

This book is conscientious and reliable if, perhaps, uninspired. It contributes worthwhile information to our storehouse of knowledge about sociological problems of housing, and it provides data on certain modes of social interaction that might find a variety of useful applications.

Robert N. Rapoport.

The Volunteer Work Camp: A Psychological Evaluation. Henry W. Riecken. Cambridge, Mass., Addison-Wesley Press. pp. 262, $3.50.

The American Friends Service Committee runs a number of work camps where young people—all volunteers and paying their own way—come together to do jobs of social value in poor or depressed communities. As well as achieving their immediate practical aims, the object of these camps is "to give young people an opportunity to acquire first-hand experience of physical, social and industrial problems in areas of conflict; to combine this knowledge with and obtain it through work for a community; and to explore the possibilities of initiating social changes through non-violent techniques." Dr. Riecken's purpose is to discover how far these camps do, in fact, reduce prejudice, authoritarianism, and inner conflict, and increase belief in "democratic group procedures", altruism, "service-directed" vocational ideals, and social adjustment. Judging by the results of administering Sentiments Inventories, Sentence Completion Tests, and T.A.Ts. at the beginning and end of their stay in the camp, there was certainly a change in most of the subjects, mainly in the directions hoped for. Moreover, even when the change is rather unexpected to the author (such as greater recognition than previously of the difference between the campers and their fellow countrymen), it would seem consistent with the general line of development. These findings are no doubt encouraging to the sponsors of the work camps, but they are not in fact surprising. These young people are clearly altruistic and socially responsible in the first place, and all we know of group dynamics would suggest that these admirable traits would be heightened by their living and working together for a common aim. The test validation of this, for what it is worth, merely confirms common sense.

Of greater interest is the analysis of the way in which the camps are run and communal decisions reached. Indeed it would seem that the Quakers' employment of group decision methods, though reached through religious rather than topological considerations, ante-dates Lewin. It is small wonder that the attitudes of the camps should have been changed in such an atmosphere.

There is much to encourage and to interest in this work, but there is also a certain amount of rather undigested thinking in subjects like "democracy". This, like other "hurrah" words, covers a multitude of unexplored assumptions. Nevertheless, Dr. Riecken shows humanity and a considerable insight into social and psychological process. His last chapter, criticizing his own research, is an object lesson in scientific humility which might well be more widely copied, and Professor Gordon Allport contributes an interesting appendix evaluating a work camp in Germany.

A. C. T. W. Curle.

The Psychology of Personality. Bernard Notcutt. London, Methuen & Co., Ltd., 1953. pp. 235, 21s.

Professor Notcutt makes it clear in his preface that "The main purpose of this book is that of direction-finding in the field of Personality. It is an attempt to choose, from among the great variety of current psychological concepts and methods, those that have the best promise for the future."

In the first two chapters the author briefly reviews the place of personality study in psychology and the many theoretical viewpoints behind current methods of study. He arrives at a broad classification of these theories of personality into three kinds of systems for describing a person: in terms of basic traits, in terms of external forces acting on the person, in terms of interaction of person and environment. These theoretical approaches are critically reviewed in a well linked sequence of six chapters dealing with "Traits", "Types and Factors", "Forces of the Environment", "Theories of Basic Motives", "Patterns of Motivation and Mechanisms of Defence", and "Psychodynamics". In the next two chapters projective methods and group methods of exploring personality are

considered with special reference to some of the better known techniques. The general theme of the book is rounded off by a discussion on the logic of validation, and in a final chapter the author attempts to sketch the development of the concept of personality from Aristotle to modern times.

Professor Notcutt not only succeeds in ordering and fitting into this book of 235 pages a very considerable amount of fact, illustration, and argument in a way that makes stimulating reading, but he also goes a long way towards achieving his purpose of showing that "The most effective ways of studying personality depend, not on rejecting subjective insights, but in validating them", and that "It is in the study of personality most of all that scientific and subjective psychology come to terms with one another".

In pursuit of this aim the author looses many sly barbs, effectively directed against the intolerance, complacency, and isolationism in many psychologists who set out to explore personality. But he can also be fairly critical towards these approaches on which he builds most hopes; for example, in his demand for a clarification and hardening of concepts which have derived from psycho-analytic work.

A book of this kind will inevitably invite criticism from specialists who have a particular interest in the various approaches under review by the author. In the later chapters, in particular, there are some signs of omission and of under- or over-emphasis. One feels also that the integrative attempt could have been carried further, for example, in relating psycho-analytic method and Lewin's Field Theoretical approach.

The tables into which information about different ways of investigating personality is classified are particularly helpful. There are a few inaccuracies and omissions in the References, for example, "Barker, Kounin and Wright" is given twice as "Barker, Konnin and Wright", and the date of the paper in *J. abnorm. soc. Psychol.* on "Knowledge of other People" by Notcutt and Silva is omitted.

H. Phillipson.

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